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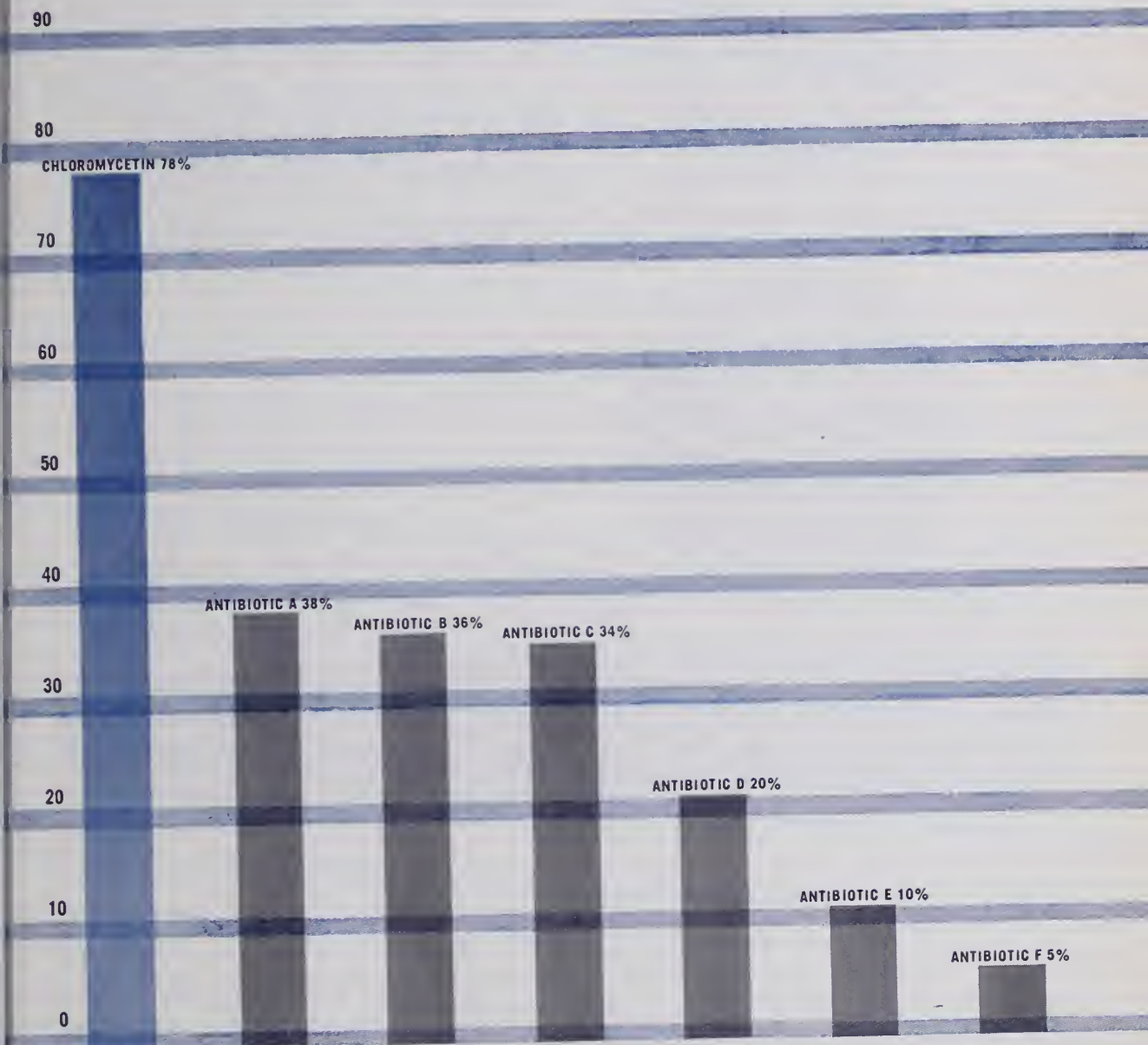
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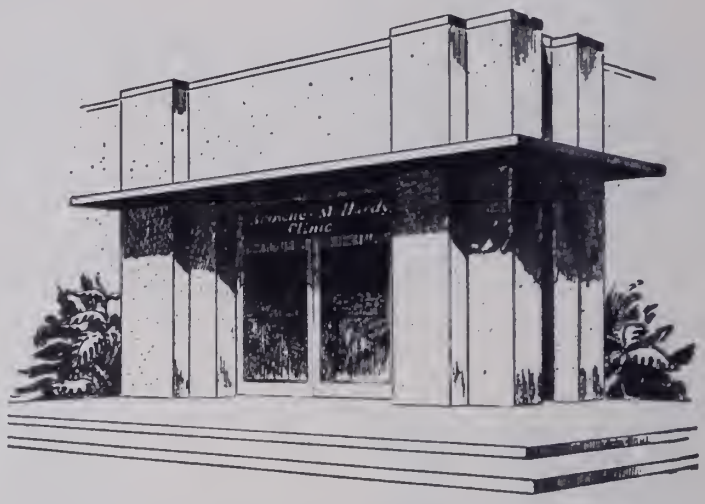
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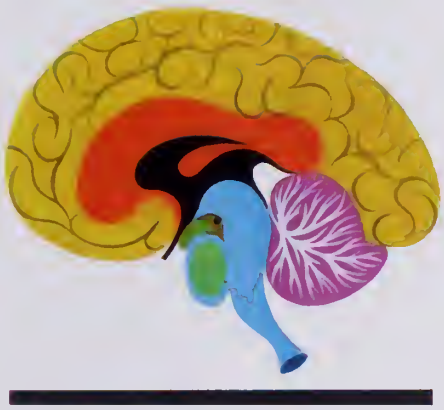
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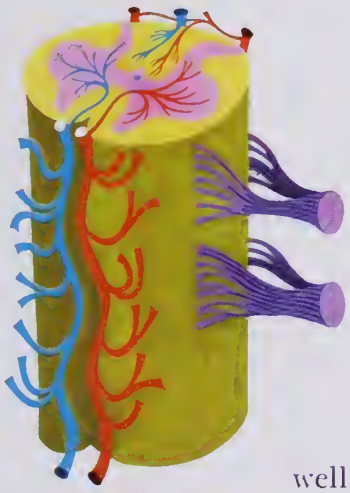
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1. Waldman, S., and Pelner, L.: Am. Pract. & Digest Treat. *8*:1075 (July) 1957.

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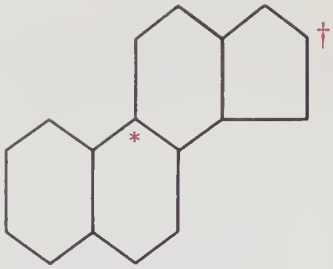
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Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.[1] Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.[2] Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.[3] Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.[4,5] In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.[6,7]

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.[1] Potassium balance studies in humans[2,3] revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.[6,7]

Calcium and phosphorus

Phosphate excretion in animals[1] was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies[3] demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.[3] At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.[2,3]

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.[8]



Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.[1]

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet[1] and cottonball[9] tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.[10] Clinical studies[11] of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.[12] The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

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The Promise of Aristocort in Reduction of Side Effects

It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are below compared to the reported incidence of those from prednisone and prednisolone.

Peptic Ulcer

The most recent study available on the incidence of peptic ulceration in patients with rheumatoid arthritis on long-term prednisone therapy reported 12 ulcers in 49 cases (24 per cent).[1] Lowest incidence of 6.5 per cent has been recorded in a group of patients on this drug for six to nine months.[2] Four of six ulcers, in another series of 39 patients on prednisone,[3] appeared in less than three months of therapy.

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The incidence of compressed fractures of vertebrae—and to a lesser extent in other bones—is high in patients on prolonged therapy with all previous corticosteroids.[4] One group of 49 patients[1] on long-term prednisone treatment experienced nine vertebral fractures (18 per cent); another series of 39 developed eight fractures (20 per cent),[3] four to 15 months after the beginning of steroid administration.

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case[5]). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,[4] and toxic syndromes producing even convulsions and death.[6]

Since the onset of these complications is not directly related to duration of steroid administration,[7] the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.[8] Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.[5,9]

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.[10,11] Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.[5] These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, lightheadedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,[12] 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),[8] and in inflammatory and allergic skin diseases (33-50 per cent).[13,14]

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in a lower incidence of the major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort in Rheumatoid Arthritis

ARISTOCORT *therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.*

Significant is the fact that most patients were *severe* arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates[1] treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of* ARISTOCORT *sufficient to control arthritic symptoms.*

Hartung[2] treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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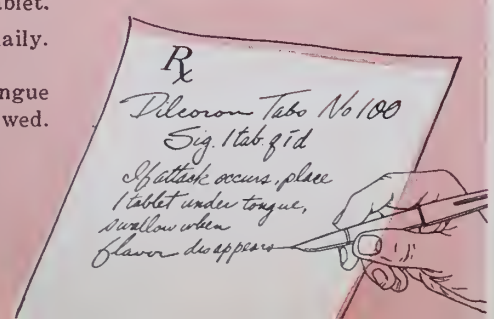


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OPEN HEART SURGERY: BASIC PHYSIOLOGIC PRINCIPLES AND CLINICAL APPLICATION IN CONGENITAL HEART DISEASE *

PAGE W. ACREE, M. D.

Baton Rouge

Although effective surgical methods for dealing with certain cardiac disorders had been developed previously, the introduction of controlled cross-circulation by Lillehei and associates [7] made open heart surgery possible for the first time. Subsequent development of safe and effective artificial oxygenators afforded a more practical method for achieving cardiopulmonary by-pass.[3, 4] Sufficient experience has now accumulated with these heart-lung machines to demonstrate their clinical usefulness in operations upon the heart. This report is concerned with the basic principles, techniques, and some of the physiologic changes encountered in the use of the bubble oxygenator, and to indicate the application of these basic principles to congenital heart disease.

BASIC PRINCIPLES

Oxygenation of blood. During the time when the heart and lungs are excluded from the circuit, sufficient oxygenated blood to sustain life must be delivered to the body. Oxygenation of blood has been accomplished by three basically different methods: donor oxygenation, homologous lung or biologic oxygenation, and artificial or mechanical oxygenation.

Donor oxygenation: This principle involves collecting arterial blood from multiple donors in several reservoirs or employing the technique of cross-circulation whereby donor and patient are connected by vein-to-vein and artery-to-artery cannulations with the flow controlled by mechanical pumps.

Biologic oxygenation: This principle involves pumping a controlled amount of the recipient's venous blood into the common pulmonary artery of a set of lungs removed from an animal. The lungs are ventilated with 100 per cent oxygen which is delivered through a cannula into the trachea. The oxygenated blood is allowed to flow freely into a reservoir from the pulmonary veins and is pumped back into the arterial tree of the recipient.[2]

Mechanical oxygenation: Many ingenious methods have been designed for the artificial oxygenation of blood. The most commonly used methods at present employ two different principles. The "film" oxygenator allows venous blood to be spread out very thinly on a screen, either stationary or on a moving drum, in an atmosphere of oxygen. Carbon dioxide escapes according to the law of partial pressures and oxygen is picked up by diffusion. In the "bubble type" method, oxygen is introduced directly into a column of blood through very fine apertures, excess oxygen and carbon dioxide leave

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From the Department of Surgery, Tulane University School of Medicine, New Orleans, Louisiana.

the system as the blood flows down a gradual incline into the collecting system.

To date, clinical experience at Tulane has been limited to the "bubble type" oxygenator but a newly acquired film type machine is now being employed.

Principles of flow. Given a method by which blood can be oxygenated effectively, some basic point of reference of volume of blood flow as it relates to life is essential for its intelligent application. Regardless of the method of oxygenation selected, a clear understanding of the fundamental relationship of volume flow to life under the altered conditions imposed by cardiac surgery is essential. This relationship was clearly demonstrated by experiments of Andreasen and Watson. They found that if the superior and inferior vena cavae and the azygos vein were excluded, all animals died within five to eight minutes; however, if the azygos vein was left open, all animals recovered promptly after thirty minutes of occlusion of the cavae.[1] The amount of flow through the azygos vein was found to be adequate for survival for thirty minutes if the heart was not manipulated. This flow was carefully measured and found to be 5 to 9 cubic centimeters per kilogram body weight per minute. These investigators and others have shown that as the volume of flow was increased above the azygos flow rate the percentage of ventricular fibrillation, resulting from trauma to the heart, decreased and that at volumes of flow from three to four times the azygos flow rate, opening the heart was quite safe.[6]

This low flow principle has been extensively applied clinically and actually was the basis for the first successful series of intracardiac repair of congenital heart lesions under direct vision using an extracorporeal system. However, as clinical experience increases, evidence is found to support the opinion that the volume of flow should be greater, especially in infants. The volume of oxygenated blood returned to the patient is entirely dependent upon the amount that can be recovered from the superior and inferior vena cavae. This amount varies with each patient. Continuous monitoring of the pressure in the inferior vena cava and maintaining this pressure at near normal levels is considered a reliable indication as to the adequacy of the volume of flow:

Incision and cannulations. Methods of cannulation for the withdrawal of venous blood and its return to the body as oxygenated blood varies. Basically, however, the venous blood is picked up through two cannulae which have been introduced through the appendage of the right atrium into the superior and inferior vena cavae respectively. Occluding tapes passed around the cavae insure complete venous "pick up" when the machine is in operation. The oxygenated blood can be returned to the body via any large artery. The right common femoral is preferred because it can be easily repaired and the the cannula is away from the operative field. These cannulations can be made through a standard thoracotomy incision in the right fourth interspace. However, for work in the right ventricle it is necessary to do a bilateral thoracotomy with a trans-sternal incision. To prevent clotting in the cannulae and in the machine, the patient is heparinized prior to the insertion of the cannulae and the donor blood to fill the machine is collected in heparin. At the conclusion of the procedure, protamine sulfate is given intravenously to counteract the effect of the heparin.

During the time the heart is open, blood perfuses the coronaries and empties into the right heart through the coronary sinus, thebesian veins, and atrioluminal vessels. This volume may be as much as 25 per cent of the entire flow and must be returned to the oxygenator directly.[3]

A motionless heart is desired for the repair of ventricular septal defects. Cardiac arrest is produced by cross-clamping the ascending aorta and injecting a solution of potassium citrate proximal to the clamp to perfuse the coronary arteries. Cardiac standstill can be safely maintained for at least thirty minutes. When

the clamp is removed the coronaries are perfused with oxygenated blood, the potassium is washed out and normal rhythm ensues.

Closure of the intracardiac defect is accomplished by apposition of the edges of the defect with either interrupted or running sutures. If the defect is too large to permit approximation, a patch of compressed polyvinyl sponge is sutured to the edges of the defect. This plastic patch is inert and serves as a scaffold upon which endothelial cells grow. It remains as a permanent structure within the heart.

PHYSIOLOGIC CHANGES

Blood pressure. During the period of cardiopulmonary by-pass the blood pressure declines to 60-70 mm. of hg. but usually returns to preoperative levels when the normal circulation is restored. The pressure is not necessarily related to the volume of flow.

Experience has indicated that volume of flow and not blood pressure is the more important factor.

Electrocardiogram. Following perfusion and cardiotomy there is usually no significant change in the electrocardiogram.[8]

Body temperature. Despite the fact that oxygenated blood passes through a water bath there is a tendency to hypothermia during the procedure. The temperature is constantly recorded and controlled by a thermal mattress.[8]

Metabolic changes. In general there is a tendency to metabolic acidosis while the patient is being maintained on the mechanical oxygenator.[5, 6] In those patients in whom the volume of flow more closely approximates the normal cardiac output this tendency is less than in those who have a lower volume flow. Metabolic acidosis is quickly corrected when the normal circulation is restored.

Respiratory alkalosis, due to an excessive amount of carbon dioxide leaving the blood plus the altered respiration as a result of thoracotomy, may be a significant factor.[8]

There is no appreciable change in serum potassium, sodium or chloride. Blood urea nitrogen is essentially unchanged.[8] There is a transient drop in platelets and leukocytes which reverts to normal within a few hours.[8] Hemolysis is minimal and the clotting mechanism returns to normal following the administration of protamine.[8]

Clinical application. To date, extracorporeal circulation has been used at Tulane in the repair of interatrial and interventricular septal defects and in one case of complete transposition of the great vessels. The oxygenator has been used successfully in closure of an acquired interventricular septal defect and in aneurysms of the ascending aorta. Severity of the cardiac lesion, pulmonary arterial pressure, the presence or absence of heart failure and size of the patient are of critical importance in the success or failure of the procedure. Increasing experimental and clinical experience helps to solve certain problems related to the use of extracorporeal circulation, making the procedure safer and applicable to a variety of cardiovascular disorders.

SUMMARY AND CONCLUSIONS

Mechanical heart-lung by-pass utilizing extracorporeal circulation makes possible the repair of certain intracardiac defects as well as acquired lesions of the aortic arch. With these "heart-lung machines" flows of 50 to 100 per cent of cardiac output are possible. Although slight metabolic changes may occur, these are not serious and can be easily corrected.

Employing a bubble-type oxygenator we have successfully repaired defects of the atrial and ventricular septa. These techniques are applicable to a variety of cardiovascular disorders.

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SURGICAL TREATMENT OF CERTAIN AORTIC DISEASES *

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Until recent years, surgical methods of combatting man's greatest killer, arteriosclerosis, have not been generally used. With the fantastic advances in vascular surgery during the last decade, the medical challenge of arteriosclerosis involving major vessels has been met by surgeons with most encouraging results. That operation is not the solution to arteriosclerosis is obvious, but early detection of some of its pathological processes has resulted in rehabilitation and conservation of life and limbs in many instances.

Contrary to popular opinion, arteriosclerosis is not a generalized process; its lesions are scattered and segmental. Commonly affected is the terminal aorta, where two diseases occur with increasing frequency: arteriosclerotic occlusion and arteriosclerotic aneurysm.

OCCLUSIVE AORTIC DISEASE

The intimal changes associated with arteriosclerosis in this region may be due in part to mechanical factors, including eddy currents in the blood stream. Once present, the arteriosclerotic changes become progressively worse. Accumulation of lipids in the intima, with subsequent thickening, disorganization of elastic tissue, accumulation of calcium, and plaque formation, is followed by ulceration and formation of small thromboses. The walls of the vessels thicken, and the size of the lumen progressively diminishes. Ultimately, increased thrombosis leads to total occlusion. Proximal to the occlusion, a slowly progressive thrombosis ascends up to the point at which the next major vessel arises, the renal artery. Distal to the occlusion, further gradual thrombosis descends again, usually to the point of the next major branch. Whether the process commences in the iliac vessels and ascends or has its initiation at the bifurcation is speculative.

Terminal aortic occlusive disease has been recognized as a clinical syndrome since Leriche's [11] original description of it in 1923. The disease is common in the fifth and sixth decades of life, although persons in their late twenties and early thirties may have extensive occlusion. This may be total or incomplete, may be strictly localized to the bifurcation, or may rarely lie between the bifurcation and the renal vessels. Commonly, the bifurcation, with varying portions of one or both iliac arteries, is involved. The characteristic symptoms, which are due to ischemia, are intermittent claudication in the thigh, buttocks, hips, or low part of the back. Frequently, the neurosurgeon or orthopedic surgeon is, therefore, first consulted. Impotence is a frequent complaint when occlusion is extensive, although this is not invariably so. Trophic changes in the skin of the lower extremities are conspicuously absent. The diagnosis is confirmed by the presence of weak or absent femoral pulsations, frequently associated with a soft systolic murmur heard over the lower abdominal or inguinal regions. Hypertension is common when occlusion is complete. Lumbar aortography will confirm the presence and extent of the disease.

Surgical treatment: Surgical treatment of occlusive aortic disease is directed at restoration of normal blood flow to the extremities. A number of procedures may accomplish this result: (1) resection of the terminal aorta and occluded branches, with replacement by graft, (2) localized thrombo-endarterectomy or resection of only the inner layer of the occluded segments, with reconstruction of the relatively normal outer layers of the vessel, (3) utilization of a bypass graft from normal areas of aorta to normal distal

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vessel, the occluded segments being left intact in their normal position. By this method, collateral circulation that has already been established remains virtually undisturbed. Restoration of normal circulation with reconstruction of arterial continuity, with or without excision of diseased vessels, offers the only possibility of retarding the disease. Excessive conservatism is to be condemned. Circulation must be established to a relatively normal degree well below the point of occlusion, often as low down as the superficial femoral artery. If the obstruction is localized above the inguinal ligament, with relatively normal distal vessels and good back flow, excellent operative results can be expected in more than 90 per cent of patients, frequently with return of sexual potency.

AORTIC ANEURYSMS

Aneurysms of the aorta are generally classified as arteriosclerotic or syphilitic (Figures 1 and 2). Arteriosclerotic aneurysms are usually fusiform and may occur anywhere in the aorta, whereas the syphilitic variety is usually saccular and is confined to the thoracic aorta. In the abdominal aorta, arteriosclerotic aneurysms are usually elongated, and more than 90 per cent are located below the renal arteries.

Abdominal Aneurysms: About 30 per cent of abdominal aneurysms give rise to no symptoms prior to leakage or rupture. Pain in either the back or the abdomen is the commonest complaint apart from the ever present pulsating mass, especially notable while the patient is lying flat. This mass is located in the upper left section of the abdomen because, although it is generally unrecognized, the aortic bifurcation lies at the level of the umbilicus, the renal vessels lying beneath the rib cage at the level of the xiphoid. Tenderness over the mass and loss of weight are characteristic. Whereas symptoms due to pressure are not usually associated with these aneurysms, they may accompany significant sequelae of duodenal and jejunal compression as well as lumbar vertebral erosion.



Figure 1—Tremendous aneurysm of the aortic arch.

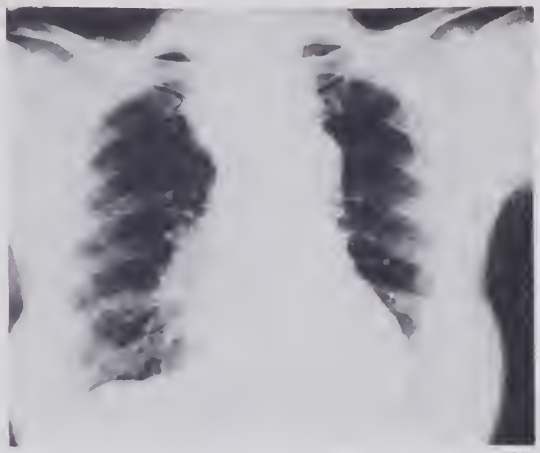


Figure 2—Saccular aneurysm of the ascending arch, possibly amenable to excision by aortic suture technic.

Rupture of the aneurysm or preliminary leakage is associated with severe pain, which radiates through to the back and down into the inguinal regions. The mass usually leaks into the retroperitoneal space, but it may rupture into the duodenum or upper gastrointestinal tract and thus render the diagnosis considerably more difficult. Shock in varying degrees, depending on the rate of blood loss, occurs with progressive abdominal distention. Leukocytosis is present in about 50 per cent of patients. Although these are usually described as ruptured aneurysms, most aneurysms actually leak slowly, for

hours, days, or even weeks, before rupture, massive hemorrhage, and death occur. A leaking or ruptured aortic aneurysm must be recognized as a dire emergency if any salvage is to be attained.

The mere presence of symptoms is of serious prognostic significance, since the average duration of life after their onset is not usually more than three years. In Estes's [10] series of 97 arteriosclerotic aneurysms, 25 per cent of the patients were dead from rupture within one year, 50 per cent within three years, and all within ten years after the diagnosis was made. Crane [7] emphasized that 82 per cent of the patients with aneurysms larger than 7 cm. in diameter were dead from rupture within six months after establishment of the diagnosis. In those patients whose aneurysms were less than 6 cm. in diameter, he found the danger of leakage to be extremely rare. Ample opportunity exists for surgical intervention in most patients with leaking aneurysms, since 25 per cent usually live at least six to eight hours before the occurrence of massive or terminal hemorrhage. With prompt diagnosis and surgical intervention, a salvage rate of 50 to 60 per cent can be achieved.

Surgical treatment: Removal of the mass prior to rupture, with restoration of blood flow through a graft, is the only logical form of therapy in the absence of definite contraindications, such as serious renal or cardiac disease. Few aneurysms are technically nonresectable, and involvement of the renal vessels no longer constitutes contraindications, as evidenced by the remarkable fatality rate of about 2 per cent obtained by DeBakey and associates.[6, 8, 9] Despite the serious risk of operation in patients with leaking or ruptured aneurysms, resection should be attempted in view of the otherwise hopeless prognosis.

Aneurysms larger than 7 cm. in diameter or those associated with symptoms are generally considered to be indications for surgical intervention (Figure 3) but opinion is divided regarding treatment of



Figure 3—Large aneurysm of the terminal aorta — amenable to excision and replacement graft.

small asymptomatic abdominal aneurysms. No less a vascular authority than Michael Boyd [4, 7] of Manchester believes that asymptomatic aneurysms should not be treated surgically, especially in elderly patients. Admittedly, all patients with abdominal aneurysms are not necessarily candidates for operation; careful periodic re-examination of this group should be carried out, and operation should be advised at the first development of symptoms. Hypertension, pre-existent cardiac disease, and advanced age will influence the case fatality rate, since the risk incident to resection in these patients is considerably greater.

Technic of resection: Spinal and hypotensive anesthetic methods are proposed by some surgeons, but I have found general anesthesia, with adequate relaxation, to be far more satisfactory. The incision is made from the xiphoid to the pubis, and the peritoneal cavity is entered. The entire small intestine is retracted upward and to the right. The posterior peritoneum is incised along the root of the mesentery, the ligament of Treitz is divided, and the duodenum is mobilized. Because of the intense inflammatory reaction surrounding aneurysms, loops of intestine, duodenum or ureter, may be firmly adherent to the mass. Prior to

any mobilization of the pulsating tumor, tapes should be placed around the aorta, above the aneurysm, and below, around the iliac vessels. Preceding actual excision, the aneurysm should not be extensively manipulated because of the danger of dislodging necrotic wall or thrombus into distal arteries. When the aorta above and the vessels below have been occluded, division should be made below the mass, and resection should be accomplished from below upwards, the lumbar vessels being ligated and divided. Particular care is required in dissection of the aorta from the vena cava (Figure 4). When it is densely adherent, the aneurysm should be opened, the clot should be evacuated, and that portion of the wall attached to the cava should be left in place rather than further dissection being attempted in this obliterated plane. Because the left renal vein is so frequently obscured by fat and fibrous tissue, particular care must be exercised to avoid injury to this vessel.



Figure 4—Drawing of terminal aortic aneurysm. Right iliac artery is dilated. Bifurcation graft is necessary.

When the aneurysm has been removed, a graft of suitable length should be selected (usually of the bifurcation type since the origins of the iliac artery are most commonly involved), and anastomosis should be begun. A simple over-and-over suture, with the use of 3-0 silk for the proximal aortic end and 4-0 silk for the iliac arterial end, is satisfactory. Whereas the period of aortic occlusion below the renal artery is of lesser importance in occlusive disease with an already established collateral circulation, early restoration of blood flow after resection of the aneurysm is desirable. Periods of occlusion up to 140 minutes, however, appear to be well tolerated without serious ischemic changes in the lower extremities.

Complications: The complications of aortic resection may be: (1) operative, (2) thrombotic and embolic, (3) ischemic, or (4) renal.

(1) Operative Complications: Injury to the vena cava, left iliac vein, which underlies the bifurcation, or left renal vein may lead to obstinate hemorrhage. Since attempts to clamp these vessels are especially dangerous, hemostasis should be attained with pressure and suturing of the rent with 6-0 silk. The left ureter may be divided or injured during freeing and mobilization of large aneurysms, as this structure is frequently densely adherent and deviated from its usual course. Prompt recognition and repair are imperative.

Adequate attention to hemostasis is essential, especially from oozing middle sacral or lumbar vessels, possibly obscured by the replacement graft. Hemorrhage from the suture holes at the anastomotic line can generally be controlled by slight pressure with gauze sponges; occasionally, a defective suture may require additional reinforcement. The anastomosis should be doubly checked after flow of blood has been re-established for a reasonable period of time.

Tearing and fracture of the aorta may occur from too tightly occluding clamps, especially in the presence of a hardened arteriosclerotic vessel. For this reason, a tape placed well above the site of occlu-

sion, preferable above the renal artery, is strongly advocated as a safety measure for control of hemorrhage.

(2) Thrombotic and embolic complications are, unfortunately, still too common following aortic grafting procedures. These may occur from plaques, loosened during thrombo-endarterectomy proximal to the anastomosis, from inadequate flushing out of the proximal vessels, or from formation of a clot in the vessels distal to the lower clamp. Frequent loosening of the clamp to allow the vessels to bleed and flush out clots should obviate much of this danger. Early thrombosis and occlusion of the graft are becoming more common as the use of plastic material becomes more popular, the clot often commencing and progressing from the proximal anastomosis. A vigorous flow of blood through the graft is the best insurance against thrombosis, and every effort must be made to insure adequate blood pressure after continuity is re-established. Patients with early loss of pulsations in one or both extremities after operation must be re-explored promptly, with removal of the thrombus or replacement of the graft. Most postoperative thromboses occur before the patient leaves the operating room or within the first few postoperative hours.

(3) Ischemic complications: In addition to ischemic complications that result from failure of the graft, poor peripheral vessels or distal thrombosis, the blood supply of the rectosigmoid may be prejudiced from division of the inferior mesentery and hemorrhoidal arteries. Gangrene of the intestine has, in rare instances, followed aortic grafting. If the intestine appears to be dusky and the state of viability is questionable, a loop colostomy, with exteriorization of the intestine, is recommended at the time of the primary procedure.

(4) Renal complications have been responsible for a considerable proportion of deaths after aortic grafting. Lower nephron nephrosis, involvement of the orifices of the renal arteries with arteriosclerotic plaques or thrombosis, and prolonged hypotension are all contributing factors. In two of my patients, bilateral massive thrombosis of the renal artery occurred, with death from renal failure seven days after an otherwise successful grafting procedure. In both instances, thrombosis was attributable either to fresh formation of a clot at the site of denuded intima at the orifices of the renal vessels or possibly to debris flushed into the renal vessels during manipulation of the aorta. When the aorta is extensively involved, with thrombosis up to the origin of the renal arteries, extreme care must be observed during thrombo-endarterectomy in the region of the aorta adjacent to the renal arteries to avoid this insidious and often fatal complication.

Aneurysms of the Thoracic Aorta: These aneurysms may be saccular or fusiform and may develop anywhere from the origin of the aorta to the diaphragm. Their prognostic significance is greater than that of abdominal aneurysms. They are associated with symptoms due to pressure, primarily pain, cough, dysphonia, dysphagia, and erosion of bone. The average duration of life after onset of symptoms is about six to nine months.

Surgical treatment: The surgical treatment of these aneurysms is directed toward: (1) reduction of lateral pressure on the weakened portion of its wall or (2) complete excision of the diseased aorta and aneurysm, with subsequent restoration of blood flow. The weakened portion is excised after occlusion of the neck of the aneurysm with suitable clamps, and lateral repair of the aorta is carried out by suture of the neck (Figure 5). This procedure, so adequately described by Bahnson [2, 3] in the treatment of saccular aneurysms, is successful because syphilitic saccular aneurysms often have a narrow neck, which facilitates the application of clamps and enhances the tenacity of sutures. Furthermore, despite the widespread syphilitic changes in the wall of the aorta, the base of the aneurysm is tough and leathery and is strong

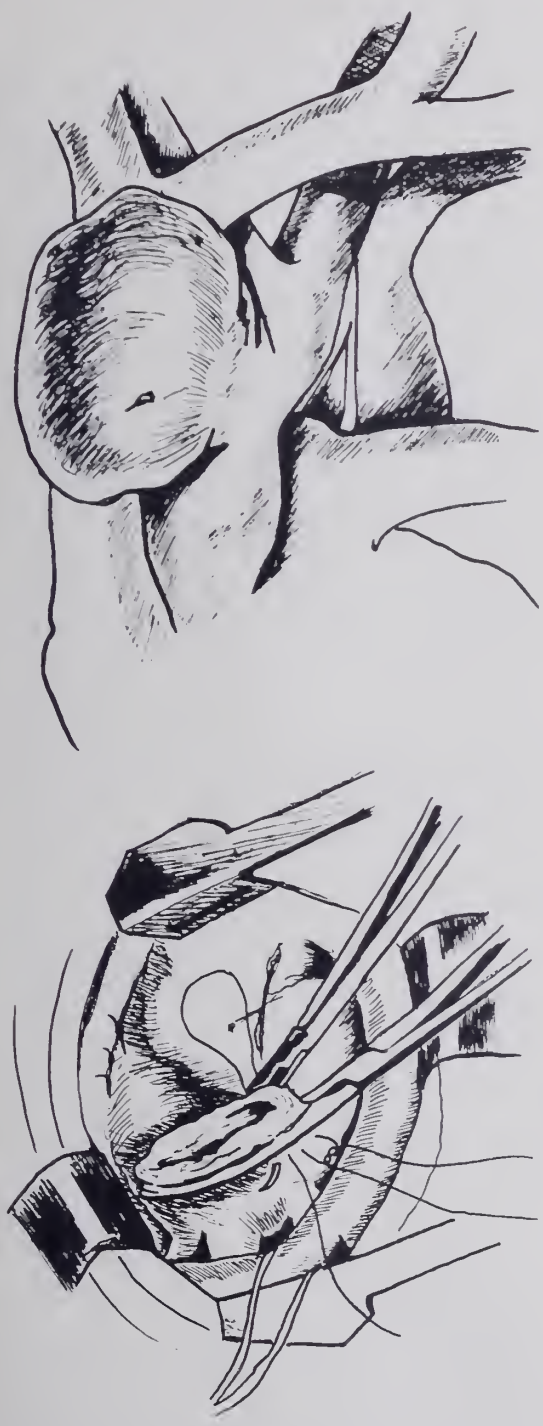


Figure 5—Excision by aortic suture technic, as advocated for saccular thoracic aneurysm possessing narrow neck.

enough to hold both the occluding clamp and sutures satisfactorily.

For aneurysms with a wide neck inaccessible to successful application of clamps, such as the arch of the aorta, excision with reconstruction of continuity through a graft is preferable.[6, 9] Because serious consequences may follow even rather brief periods of occlusion of the thoracic aorta, methods of bypassing the occluded area must be used during resection. A temporary shunt through a bypass graft, with ingenious lesser shunts to carry circulation through the carotid arteries, is being used successfully. Hypothermia and temporary hypotensive anesthetic methods are valuable adjuncts during any procedure that requires thoracic aortic occlusion. The entire aortic arch has been successfully replaced, and prolonged periods of occlusion of the thoracic aorta are now possible when temporary shunts are used. Although the danger of interference with the supply of blood to the spinal cord is not great, some instances of paraplegia after thoracic aortic resection have been reported.[1] Surgeons should be reminded that the supply of blood to the thoracic spinal cord is both poor and inconstant, so that ligation of only a few pairs of intercostal arteries may lead to severe ischemic changes in the spinal cord.

Whereas the risk associated with operative correction of aneurysms of the thoracic aorta is appreciably high (about 30 per cent in most series), nonsurgical treatment of this "malignant disease" is universally fatal. As experience with newer technics increases, results will undoubtedly improve. It is in this particular field that some of the most brilliant technical achievements have been accomplished in the field of vascular surgery during the past few years.

SUMMARY AND CONCLUSIONS

Resection of the aorta has been performed in several hundred patients with an average case fatality rate of approximately 10 per cent, although in DeBakey's recent series there was a remarkable fatality rate of only 2 per cent. A sufficient number of operations has now been performed to demonstrate relief of symptoms, rehabilitation, and prolongation of life.

Most complications consequent to resection of the aorta, either for aneurysm or occlusive disease, are related to extensive distal arteriosclerotic disease, coexistent cardiac or renal disease, or interference with blood supply to the spinal cord or intestine. Development of readily available and more satisfactory plastic prostheses has made the surgical treatment of leaking or ruptured abdominal aortic aneurysm an emergency operation. A salvage rate of about 50 per cent has been achieved in patients who would otherwise have had certain early death. With increasing awareness of the clinical status of these patients and earlier operation, even greater success in surgical treatment can be anticipated.

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GASTRECTOMY FOR BLEEDING PEPTIC ULCER IN A 30-MONTH-OLD CHILD

WITH RECOVERY COMPLICATED BY ADRENAL HYPOFUNCTION

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The following case report is presented for several reasons: (1) to add another instance of gastric resection for ulcer to the limited number now on record in which surgery of such magnitude was required in a very young child; (2) to demonstrate the ability of a very young child to compensate for the loss of over half of the stomach, as indicated by his nutritional status, growth and development in the two years following operation; and (3) to draw attention briefly to a postoperative adrenal dysfunction, which is being reported in greater detail elsewhere.

CASE HISTORY

A 2½-year-old boy was admitted to Hotel Dieu, December 12, 1954, after a six day illness characterized by sore throat, fever, and vomiting. There had been no response to antibiotic therapy, and dehydration had become increasingly serious.

He was the second child of healthy parents and had a negative past history. The older child had died at the age of 4½ years, after an illness of four days. This child's illness later assumed considerable significance.

On admission, the patient's temperature was 99.2° F., the pulse 90, and the respiration 20. He seemed acutely ill and complained repeatedly of thirst and pain in his throat and mouth. Positive physical findings consisted of swelling and reddening of the lips, gum and tongue, acute pharyngitis and acute tonsilitis. The abdominal examination was negative. At this time the hemoglobin was 15 gm. per cent, the white blood cell count 13,400 per cubic millimeter, and the CO_2 combining power of the blood 23 volumes per cent.

The child's condition improved under infusions of glucose in physiologic salt solution with molar sodium lactate in appropriate amounts, fluids by mouth, and tetracycline (100 mg. every eight hours) until the fifth day of hospitalization, when he suddenly passed a large tarry stool and went into shock. Shortly afterward the abdomen became slightly distended, but there was no rigidity and only questionable tenderness. He responded well to supportive measures, including a transfusion of 250 cc. of whole blood. A mild reaction was controlled by the injection of 50 mg. of ACTH and 1 cc. of benadryl. The hemoglobin value immediately after the passage of the tarry stool was 7.8 gm. per cent. Several hours later, after the

measures described, the hematocrit determination was 40.

The child continued to progress well for the next twenty-four hours. A gastrointestinal study and barium enema done some hours after the hemorrhage revealed no organic disease of the upper tract or lower bowel.

Late in the afternoon of the following day the patient suddenly vomited a large quantity of bright red blood and again went into shock. Prompt improvement again followed standard supportive therapy, supplemented by a transfusion of 500 cc. of whole blood. An oxygen tent was used, and suction was instituted by means of a Levin tube in the stomach. Hematocrit determinations ranged from 41 to 60. Surgery was considered at a consultation, but in view of the good response to treatment and the absence of additional bleeding it was decided to continue conservative treatment for the present.

Progress was again satisfactory for the next four days. The child was kept under continuous strict observation. On the afternoon of the fifth day (December 22) bright red blood began to appear in the drainage fluid, and he was immediately prepared for surgery. The hematocrit was 40 at the beginning of the operation.

Exploration was carried out under general anesthesia (nitrous oxide, vinesthene, ether). There was no evidence of bleeding in either the ileum or the colon and no evidence of any other abnormality in these areas. The upper portion of the jejunum was full of dark blood, and the duodenum was edematous and thickened, these changes extending into the pyloric end. Careful examination of the stomach through a gastrotomy incision revealed no point of bleeding. When the duodenum was opened, blood welled up into the operative field, apparently from an area about at the junction of the first and second portions. When it was finally controlled by the application of several ligatures the source was found to be an ulcer on the posterior wall, about 5 cm. from the pylorus.

The location of the ulcer obviously precluded the use of the duodenum in any anastomotic procedure, and an attempt at dissection of the lesion was considered unwise, if only because it would increase the operating time. It was therefore decided to perform gastrectomy, leaving the ulcer in situ. The Hofmeister technique was employed, and subtotal gastrectomy was performed without incident after the stump of the duodenum had been closed. A later gastrointestinal series revealed that almost two-thirds of the stomach had been removed.

The child's condition was fairly good at the conclusion of the operation and there was no untoward incident for the first forty-eight hours. The rectal temperature was between 102 and 104° F., the pulse ranged between 90 and 120, and the hematocrit readings ranged from 33 to 36. Peristalsis was audible on the third day. The Levin tube was therefore clamped off at intervals and fluids were begun by mouth. The tube was removed on the seventh postoperative day. By this time, the child had normal temperature and was receiving a full bland diet.

In view of the previous stormy course, it was thought best to continue hospitalization, and the precaution proved wise. Progress was uninterruptedly good until January 5, 1955, the fourteenth day after operation, when there was a sudden attack of vomiting (without blood), an elevation of temperature to 103.2° F., and recurrence of the shock-like state which had attended previous episodes before operation. An infusion of glucose in physiologic salt solution containing 100 mg. of cortisone was given as a slow drip in the amount of 700 cc. and was followed by 500 cc. of whole blood. Later an infusion containing 100 cc. of calcium gluconate was given.

The response to these measures was highly satisfactory. No cause for the episode was apparent. There were recurrences on January 11 and February 3. Response to therapy was good both times.

Meantime, vigorous efforts were made to establish a diagnosis. All laboratory studies were negative, including urinalyses, blood agglutination tests, blood cultures, cultures of secretions from the nose and throat, an electrocardiogram, and roentgenologic studies to establish the bone age. Fluoroscopic and roentgenologic studies of the chest were negative; there was nothing to suggest the presence of a subphrenic abscess. Barium studies of the upper gastrointestinal tract revealed normally functioning anastomotic stoma without evidence of marginal ulcer or any other pathologic process.

The diagnosis was finally made by a combination of clinical and laboratory observations which indicated that the child was suffering from adrenal hypofunction with the salt-losing syndrome. These data included the development of pigmentation; the tendency to exhibit a shock-like state without evidence of hemorrhage; a craving for salt; a low blood sodium (123 mg. per cent); and an elevated blood potassium (6.3 mg. per cent). The 17-ketosteroids were within the normal range. Once it became evident in the postoperative period that this patient's shock-like episodes were not the result of hemorrhage, attention was directed to a possible adrenal cause. It was also recollected that the older brother's fatal illness had been associated with shock. When the parents were questioned further, they recalled that this patient's episodes resembled the episode in which the older brother had succumbed. The autopsy

report, obtained from Charity Hospital of Louisiana at New Orleans, indicated that no adrenal tissue could be located at all. In both children it seemed apparent that the adrenal hypofunction was on a congenital basis.

As soon as the diagnosis was established, percorten therapy (desoxycorticosterone-acetate) was instituted. Improvement was prompt and continuous. There were no further attacks of vomiting and shock, and when the child was discharged from the hospital March 1, his weight, which had fallen to 21 pounds, had reached the pre-illness level of 26 pounds.

Periodic checks on this patient during the two years since his illness have been gratifying. There has been no retardation of growth, no perversions of the nutritional status, and no abnormalities of blood balance. His present weight is 45½ pounds. His nutritional status is excellent. He eats normal amounts of food at regular meals and frequently eats between meals. Repeated blood counts have been within the normal range. A bone age study November 12, 1956, gave results consistent with the child's chronologic age.

REVIEW OF THE LITERATURE

The incidence of peptic ulceration in infants and children, particularly the type of ulceration which requires surgical intervention, has been discussed in several papers. Perhaps the best is an excellent collective review of the literature by Bird, Limper and Mayer,[1] in 1941. Of the 119 operations which they were able to find, 53 were for pyloric stenosis, 43 for perforation, and 12, as in my own case, for hemorrhage. The age range in this series was from 34½ hours to 15 years; the condition has been reported in utero. There were 17 gastroduodenal resections in the 119 operations, with two deaths, one in a child under 2 years of age and the other in the 12-15 year group.

In 1952, McAleese and Seiber [2] collected another 29 surgical cases of peptic ulceration in children. The single gastrectomy in the group was reported by Karlstrom, in 1949; the child survived. There were two instances of local excision of anterior accessible ulcers, both reported by Plummer and Stabins,[3] in 1950; both children survived. In 1955, Neilson and Black [4] reported a gastrectomy in an 18-month-old child, the indication being, as in my own case, severe gastrointestinal hemorrhage. The child survived and was in good condition at the end of a thirty-three month follow-up.

COMMENT

Peptic ulceration in infants and young children is most often associated with some other disease, which usually, as in my own case, is an upper respiratory infection. As a result, an ulcer is not usually considered among the diagnostic possibilities until some time has passed. Ulceration at this age is usually manifested by complications which, in order of frequency, are perforation, hemorrhage and stenosis. These complications account for a disproportionately large amount of emergency surgery in childhood.

Although the disease is relatively infrequent at this extreme of life, it must be considered, and considered urgently, when hemorrhage from the gastrointestinal tract is encountered in young children.

No general rules concerning surgical intervention exist. They would not be warranted. The decision to intervene must be made on the circumstances of the individual case and must be the joint responsibility of all concerned with the care of the child. Good pediatric care is imperative, as this case clearly demonstrates. Also implicit in the management of such a case are close, continuous observation, frequent professional conferences, and repeated laboratory studies.

It is not always wise to wait for a definite diagnosis of ulcer in the face of continued or recurrent hemorrhage. Infants tolerate blood loss poorly and may not respond to replacement therapy as well as this particular patient did. On the other hand, children tolerate surgery remarkably well, and, when the risk of continued bleeding is equated with the risk of surgical intervention, there is usually little doubt that a resort to operation is wiser.

The first step at operation is to determine the origin of the hemorrhage. In young children, bleeding from a peptic ulcer most frequently originates from a duodenal ulcer on the posterior wall, as in this case. The second step, if bleeding

is still active, is to control it by ligation of the causative vessel or vessels. Only then can the type of surgery required be decided upon. Gastrectomy is obviously a very radical measure, which, when it is possible, should not be performed in a young child. On the other hand, gastrojejunostomy alone results in a high incidence of marginal or stomal ulceration, while dissection of the ulcer is attended with technical difficulties in many cases, as it would have been in this one.

Generally speaking, conservatism is desirable in the surgery of peptic ulceration in young children, but it should be employed only when it is warranted by the conditions present. The final decision must be made on the basis of the extent and location of the pathologic process. In this case, as already pointed out, the location of the ulcer permitted no course other than gastrectomy, which was undertaken with the full realization that it was a calculated risk but the lesser of the evils which confronted us.

No attempt is made to draw conclusions from this single experience. It is striking, however, that in spite of the stormy postoperative course, caused by adrenal hypofunction, this child's progress in the two years since operation has been entirely satisfactory. He has demonstrated his ability to ingest and digest food in normal amounts, and careful observation, supplemented by laboratory studies, shows that he is developing at a rate consistent with his age. In the gastrectomy reported by Neilson and Black,[4] the child's growth after operation was almost the same as that of her twin sister. In this case, as in my own, there was no doubt of the ability of these very young children to compensate for the loss of a major portion of the stomach.

SUMMARY

A 2½-year-old boy with massive hemorrhage from a duodenal ulcer was treated by subtotal gastrectomy after failure of conservative measures. The postoperative course was complicated by the salt-losing syndrome due to adrenal hypofunction. In the two years which have elapsed since operation the patient's normal development and nutritional status have demonstrated the ability of a very young child to compensate for the loss of over half of the stomach.

The number of such cases in the literature is still very limited. Additional reports, with follow-up surveys, will aid in establishing the correct treatment for patients in this age group who require radical surgery.

Note.—Pediatric care in this case was provided by Dr. David Spizer and Dr. Richard Bagnetto, for whose cooperation I am grateful. They will report the laboratory and clinical aspects of the adrenal phase of this illness in detail elsewhere. Dr. Albert Segaloff assisted in the laboratory studies.

ADDENDUM

Since this article was written this patient passed away in Charity Hospital of New Orleans as a result of measles, interstitial pneumonia, and acute tracheo-bronchitis with ball-valve bronchial obstruction on February 18, 1957.

The pathological diagnosis included in addition to the above: Addison's disease with absence of the adrenal glands.

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HYPOBARIC PONTOCAINE SPINAL ANESTHESIA FOR PATIENTS IN THE PRONE OR LATERAL POSITION

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Although there have been many reports in the anesthesia literature concerning the use of hypobaric pontocaine spinal anesthesia,[3-8] far too little use seems to be made of it today. It can be used with equal safety as hyperbaric spinal anesthesia if basic specific gravities and patient positions are kept in mind. Of particular value is its use for lumbar laminectomies,[3-5, 8] spinal fusions, pilonidal cystectomies, rectal surgery, and any orthopedic or general surgery of the back and extremities, when the patient is to be lying prone or with the operated side up, or in situations of surgery of one side or the other when the patient is unable to lie on the affected side for the administration of hyperbaric spinal anesthesia.

TECHNIQUE

The patient is premedicated with gr. ¾ to gr. 1½ nembutal or seconal one and a half hours before the anesthesia is to begin, and with 50 to 100 mgs. demerol and gr. 1/200 to 1/150 of atropine sulfate one hour prior to anesthesia. Scopolamine is generally avoided due to confusion that it produces in some patients.

The procedure used at the Confederate Memorial Medical Center follows that of pontocaine anesthesia generally advocated by Lund and Rumball,[4, 5] particularly in their use of adrenalin to prolong the action of the spinal anesthesia. For possibly prolonged surgery in the prone position it is desirable to use longer acting spinal anesthesia, since it is unwise to hazard administering a general anesthetic for supplementation to a patient in the prone position who is not intubated endotracheally; this is done by adding varying doses of 0.2 to 0.6 cc. of adrenalin 1:1000 to the pontocaine to insure two to four hours of anesthesia. In the exceptionally prolonged cases during lumbar laminectomies, if the spinal anesthetic does not last long enough, the surgeon can easily administer an additional spinal anesthetic through the dura in the exposed interspace where the surgery is being done.

The hypobaric spinal tray consists of a #22 spinal needle, a #20 spinal needle, two short #23 needles for the mixing of solutions, a 2 cc. and a 5 cc. syringe, files, a sponge stick and sponges, one ampule of procaine 1 per cent and ephedrine 2½ per cent, one ampule of 1 per cent pontocaine of 2 cc., one ampule of 10 cc. sterile distilled water, and one ampule of 1 cc. of 1:1000 adrenalin. These trays are prepared ahead of time and all units autoclaved at 250° F. at 25 lbs. pressure for thirty to forty-five minutes including all ampules. This eliminates the hazard of chemical contamination and has not noticeably significantly decreased the action of any of the drugs including the adrenalin, nor has it introduced any known morbidity to this time.

RECTAL SURGERY

Hypobaric spinal anesthesia is used for rectal surgery almost routinely at this hospital, since practically all rectal surgery is done in the Buie or prone jackknife position. If the positioning is to be in the lithotomy, then a hyperbaric saddle block anesthesia should be used. For the hypobaric spinal for rectal surgery in the Buie position, the patient is placed on his most convenient side and moderately flexed to facilitate lumbar puncture. The blood pressure is taken and recorded. The patient is then placed in 5° Trendelenberg and his back prepped with tincture of zephiran. The procaine 1 per cent and ephedrine 2½ per cent solution is aspirated in the 2 cc. syringe and a skin wheal raised at the L4-L5 interspace. If the patient's preoperative blood pressure is low (below 100 mm. hg. systolic) from conditions other than recent acute blood

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loss, 0.5 cc. of the procaine-ephedrine solution may now be given subcutaneously through the skin wheal superiorly so as not to obscure landmarks for the lumbar puncture. The spinal anesthetic solution may now be mixed and it is standard for all normal-sized patients, of 8 mgs. pontocaine (0.8 cc. of a 1 per cent pontocaine liquid solution) added to 2.2 cc. of sterile distilled water to make a total volume of 3 cc. If more than one and one-half to two hours anesthesia is desired, add 0.2 to 0.4 cc. of 1:1000 adrenalin to provide from two and a half to four hours anesthesia time. After the lumbar puncture has been completed, attach the syringe to the spinal needle stabilizing the needle firmly and after aspirating enough cerebrospinal fluid to be sure of a free flow (not over about 0.2 cc.,) inject the solution slowly (five to ten seconds). Immediately turn the patient over on his abdomen and jacknife the table, thus placing his head and legs inferior to his buttocks that remain superiorly. Prepping and draping may begin immediately and anesthesia will be complete in three to five minutes, most often from L4-L5 or S1 downward. No time is lost waiting for the pontocain solution to fix as should be allowed in hyperbaric saddle blocks before placing the patient in a prone and jackknife position, as the solution is floating upwards in the sacral segments all the while it is in the fixing process.

Since so few sympathetic nerves are blocked there is usually very little change in blood pressure, particularly if a small dose of ephedrine has been given two to three minutes before the spinal anesthetic was given. However, the blood pressure should be watched carefully as in any other spinal anesthetic, and it is a good idea to start an infusion of 500 cc. of 5 per cent glucose in distilled water. Any significant drops in the blood pressure may be easily corrected with small intravenous doses of 0.1 to 0.2 cc. vasoxyl. It is rare, and the result usually of too rapid an administration of the anesthetic solution, if a high spinal anesthetic occurs, but its only consequence should be hypotension (which can be easily corrected with intravenous doses of vasoxyl) and not serious respiratory depression, since in the main the upper thoracic or cervical segments that might be blocked would be the posterior nerve roots and even though sensory anesthesia may result motor function remains intact.

If the surgery outlasts the anesthesia in rectal cases, it is fairly easy to remove part of the drapes and do another lumbar tap while the patient remains in the Buie or jackknife position and repeat the injection of the anesthetic solution. By carefully judging the need for the addition of 1:1000 adrenalin solution, this should practically never occur as it is far easier and without increased morbidity to plan the spinal to last an hour longer than the contemplated surgery time. The advantages of this type of anesthesia are maximum relaxation and accomplishment of anesthesia without waiting for a hyperbaric spinal to fix; the procedure is quicker by far and probably safer than caudal anesthesia, and it obviates the need for endotracheal general anesthesia for rectal surgery.

LUMBAR LAMINECTOMIES AND SPINAL FUSION

Probably next in importance is the use of hypobaric spinal anesthesia for lumbar laminectomies and lumbosacral spinal fusions. This anesthesia should not be used if there is a total or near total block of cerebrospinal fluid anywhere in the subarachnoid space. It is easy, quick, and much less patient shock is seen during the surgery than with endotracheal general anesthesia. Ventilation of the patient is better, less bleeding is encountered, and the cautery may be used as surgically desired with complete freedom from explosive hazards. Local anesthesia with pentothal supplementation in the prone position without endotracheal intubation as a method of anesthesia is mentioned in passing only to be condemned, as a patient under these circumstances who develops airway obstruction from any cause is in a precarious position indeed even with

the most expert anesthesia management.

The patient is placed on the most convenient side and moderately flexed to facilitate lumbar puncture. The blood pressure is checked and recorded. The patient is then placed in 5-10° reverse Trendelenburg, his back prepped, and draped, and a skin wheal of 1 per cent procaine - 2.5 per cent ephedrine is raised at L2-L3 interspace. Depending on the patient's prespinal blood pressure, 0.5 to 1 cc. of the procaine - ephedrine solution is given deeply subcutaneously through the skin wheal superiorly. The spinal anesthetic is then mixed, varying somewhat with the patient's size and height, from 12-16 mgs. of pontocaine (1.2 to 1.6 cc. of 1 per cent pontocaine solution) adding from 0.2 to 0.6 cc. of 1:1000 adrenalin depending upon the anesthetic time desired (two and a half to five hours), and adding distilled water to bring it to a total volume of 6 cc. The lumbar puncture is then done with a #20 spinal needle at L2-L3, the syringe inserted and enough cerebrospinal fluid (0.2 cc.) aspirated to insure that a free flow has been accomplished. The anesthetic solution is then injected at a smooth rate taking ten to fifteen seconds for the total 6.2 cc. injection.

The patient is kept in the original position thirty seconds, then the table is leveled out of reverse Trendelenburg and the patient is turned to the prone with a chest roll supporting each shoulder. He remains in this position for another thirty seconds, then the table is slightly flexed and placed in 5-10° Trendelenburg. A quick sensory needle check at this time will usually show a beginning sensory change (not complete anesthesia) at the level of the scapula (T4 to T6). An infusion of glucose in distilled water should be started as soon as the patient is turned prone (or even before the spinal anesthetic is administered if the patient is particularly hypo or hypertensive or if otherwise considered to be a particularly poor risk), and the blood pressure followed closely. Prepping and draping may begin immediately, and at least twenty minutes should be allowed to pass before the basic positioning of the patient is changed, so as to allow for the fixation of pontocaine. Sensory changes will begin in a minute or two and anesthesia complete enough for surgery to begin in four to ten minutes. During the time that the patient is in mild Trendelenburg (at least the first twenty minutes) the patient's head should lie flat without a pillow.

Respiration should be watched carefully and if any signs of moderate to marked depression should develop (if this occurs at all, it should occur during the first twenty minutes because after this the pontocaine is fixed),[4] then appropriate measures of oxygen by mask, or even the extreme possibility of turning the patient to his side or back to administer positive pressure oxygen, may have to be instituted and surgery delayed temporarily until respirations have returned to a normal degree. These are precautions that should be carried out carefully, but respiratory depressions should not occur with good technique, (proper volume, rate of injection, positioning.) As Ruben and Kistler[9] so very aptly point out, one should be able to handle these complications with ease before using these procedures.

For additional patient comfort after the patient has stabilized after twenty minutes or so, small IV doses of demerol (25 mg.) may be given every thirty to forty-five minutes PRN to produce additional narcosis. This is superior to extra barbiturate sedation as the patient rests but is aroused easily and has more complete control over his airway. Pentothal should be avoided as with its use the dangers of general anesthesia would be ever present.

PILONIDAL CYSTECTOMIES

For pilonidal cystectomies the same procedure may be used as described above for lumbar laminectomies except that the initial reverse Trendelenburg is corrected to a normal level position. The lumbar tap is made at L3-L4 interspace with a #22 spinal needle, and a dose of pontocaine of 10 to 12 mg. mixed to a total volume of 4 cc. distilled water is administered in ten

to fifteen seconds. Rarely, if thought necessary, 0.2 cc. 1:1000 adrenalin is added to the anesthetic solution to insure two to three hours of anesthesia. The patient is then turned prone immediately after the anesthetic solution is injected and the table slightly flexed and placed in 5-10° Trendelenburg.

UNILATERAL ANESTHESIA

In situations of desired one-sided or near one-sided anesthesia, where the patient is unable to lie on his affected side and the upper or superior side is going to be the operative site (as in fractured femurs, hips, etc), the patient may be positioned for spinal anesthesia with the operative site up. The same technique is used as outlined above, and in most cases of hip, upper thigh, or leg surgery, the tap is done at L2-L3. An appropriate dose of ephedrine is either given or withheld, and the appropriate spinal anesthetic solution (10-14 mg. pontocaine mixed to a total volume of 4-5 cc. of distilled water, and 0.2 to 0.6 cc. 1:1000 adrenalin added if necessary to produce a sufficiently long anesthetic time) is mixed. Injection rate is ten to fifteen seconds and the patient remains on his side. After thirty seconds 5-10°Trendelenburg may be instituted to halt the cephalad movement of the anesthetic solution. Anesthesia will be most marked on the upper side and extremity. An infusion of 5 per cent glucose in distilled water is started intravenously and the blood pressure and respiration followed closely.

Although it can be easily done, I do not like to use this technique for kidney surgery in the lateral position, because most patients will feel lower side discomfort due to minimal anesthesia on the lower side and the extreme flexion that most urologists desire, the traction pain that is usually felt to varying degrees due to stimulation over unblocked autonomic pathways, and the difficulties encountered in cases that pneumothorax is induced, particularly unrecognized cases of small pneumothorax that may produce a tension pneumothorax.

IMMEDIATE COMPLICATIONS

In the past year this technique has been used by me for 17 lumbar laminectomies at this hospital, and I have used the technique prior to this time elsewhere on about 50 cases with one failure (incomplete anesthesia probably due to incomplete subarachnoid injection of the anesthetic). The patient was turned back in a supine position and endotracheal general anesthesia instituted and the surgery carried out. There have not been any cases of even moderate respiratory depression that needed to be treated with oxygen. Occasional hypotensives were easily managed with vasoxyl or neosynephrine drip solution (0.004 per cent), and fluids such as blood, etc. later on in the procedure for hypotension due to surgery and blood loss. In some of the earlier cases, the lumbar tap was done after the patient had been placed in the prone position, but this has been abandoned because it is a little more technically difficult and time consuming to do a good free-flowing tap and may carry added morbidity (more blood-tinged taps, more chance of trauma to a disc or nerve root).

Also during this time the technique has been used 60 times for rectal surgery, 3 times for pilonidal cystectomies, and 20 times for desired unilateral anesthesia when the operated side was to be superior in a laterally placed patient. It has been used approximately 500 times in other institutions prior to this time for rectal cases. In the rectal case, pilonidal cystectomy, and leg series, there have been no failures and no morbidity except possibly an increased need for postoperative urethral catheterization in the long-acting hemorrhoid series. Occasional hypotensives have been easily corrected and in a few cases higher spinal anesthesia has been observed. There has not been any case of severe to complete respiratory depression and not any morbidity directly or indirectly attributable to the anesthesia.

There has been one case of moderately severe respiratory depression from high spinal hypobaric anesthesia for a nephrec-

tomy that needed positive pressure oxygen. This depression lasted only about twenty minutes: the surgery continued, and there were no complications. There have been 3 cases of pneumothorax during nephrectomies that were difficult to handle (apprehension and pain, necessitating positive oxygen pressure and supplementation).

It is felt that fewer postspinal decompressive headaches occur with this technique than with regular hyperbaric spinal techniques, as there is less loss of spinal fluid through the needle hole in the dura since the needle hole remains in a less dependent position during surgery, and there is probably more complete sealing of it before the patient returns to a supine position.

SUMMARY

A brief outline has been presented describing the uses of long-acting hypobaric pontocaine spinal anesthesia, stressing its ease and simplicity of administration with discussion of its possible immediate complications with emphasis upon measures for their prophylaxis and treatment.

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MATERNAL MORTALITY AT CHARITY HOSPITAL *

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There has been a marked reduction in maternal mortality at Charity Hospital in spite of spiraling admissions and an increasing concentrate of this state's obstetrical pathology. Complicated cases seem to gravitate to this institution from other hospitals and clinics for financial and other reasons. That many should have been treated in their own locality is obvious from the fact that 10 of the fatal cases listed in Table 1 arrived moribund.

The maternal mortality rate at Charity Hospital was investigated for the past eleven years (1946-1956, inclusive). This period covered 117,450 livebirths during which time 141 maternal deaths occurred giving an incidence of 12 deaths per 10,000 livebirths. There were no corrections or deletions. All were clinic patients and all were treated by one of the three obstetrical and gynecological services (Tulane, Louisiana State University, and Independent).

The statistics of the war years (1942-1945) are available for comparison in Table 1. Only totals of the Obstetrical Unit are included in this group (pregnancies twenty weeks or beyond). Hence only those gestations five months or more are considered in the upper portion of Table 1 that compares these periods; while the lower portion of this table includes all pregnancies regardless of their duration, hence the significant reduction is apparent.

Table 2 lists the causes and incidence of maternal mortality.

* Presented at the Seventy-seventh Annual Meeting of the Louisiana State Medical Society, May 8, 1957, New Orleans.

From the Division of Obstetrics and Gynecology, Tulane Unit, Charity Hospital of Louisiana at New Orleans.

TABLE 1
MATERNAL DEATHS PER YEAR

Year	Maternal Deaths Only pts. 20 wks. or more)	Live Births	Mat. Deaths/10,000 Live Births
WAR YEARS			
1942	20	5,350	37.58
1943	19	4,799	39.59
1944	17	4,304	39.50
1945	8	4,548	18.58
Total	64	19,001	33.68
PRESENT STUDY			
1946	14	7,007	19.97
1947	19	8,659	21.94
1948	15	9,407	15.94
1949	9	10,296	8.74
1950	18	10,696	16.82
1951	12	11,316	10.60
1952	16	11,312	14.19
1953	9	11,501	7.82
1954	13	12,093	19.08
1955	6	12,416	4.83
1956	10	12,747	7.84
Total	141	117,450	12.00

TABLE 2
MATERNAL MORTALITY 1946 - 1956

Total Live Births	117,450
Maternal Deaths per 10,000 Live Births	12.00

Causes of Death	No.	Deaths/10,000 Live Births
Toxemia	37	3.1
Infection	33	2.8
Hemorrhage	22	1.8
Embolism	14	1.1
Sickle Cell Disease	8	0.6
Lower Nephron Nephrosis	7	0.5
Sudden Death	4	0.34
Anesthesia	3	0.25
Neoplasm	3	0.25
Miscellaneous	9	0.76

TOXEMIA

The late toxemias of pregnancy are still the most important complication of pregnancy in our area as is evident from the data in Table 2. Our incidence at Charity Hospital averages approximately 17 per cent in spite of complete hospital and clinic facilities with adequate social and governmental assistance. The hiatus at present seems to be in the area of patient education. They must be taught the necessity of presenting themselves for clinic care, for of the 37 deaths in this series due to toxemia, 63.6 per cent did not attend clinic at all.

There were 23 eclamptics in this series and the remaining 14 are classified as "other toxemias". Significantly, 17 of the above 37 deaths occurred from cerebrovascular accidents and is the reason *sine qua non* for the three obstetrical services involved constantly casting about for better methods of controlling the characteristic vasospasm and tissue anoxia of this entity.[1-5, 12] That some measure of success has been accorded the efforts put forth is reflected in the overall reduction in the number of toxemic deaths as recorded in Table 3. This diminution of cerebrovascular accidents is probably at least partially due to the use of antihypertensive drugs.

INFECTION

Infection is still the second cause of deaths in this hospital regardless of effective antibiotics and chemotherapeutic agents. The reasons for its prominence are the large number of criminal septic abortions and the significant referral of infected cases from elsewhere. Table 4

TABLE 3
TOXEMIA DEATHS

	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Eclamptic Deaths per 10,000 L. B.	4.3	5.77	2.12	0.9	3.7	1.75	0.0	1.7	2.48	0.0	0.78
Other Tox. Deaths per 10,000 L. B.	4.3	1.15	1.06	0.0	0.0	1.75	2.6	1.7	1.65	0.0	0.00
Total Tox. Deaths per 10,000 L. B.	8.6	6.92	3.18	0.9	3.7	3.50	2.6	3.4	4.12	0.0	0.78
CVA Deaths in all Tox./10,000 L. B.	4.2	2.3	2.1	0.0	2.8	1.7	0.8	1.7	1.6	0.0	0.0

TABLE 4
FATAL INFECTIONS

Early septic abortions		15
Criminal interruption	10	
Denied criminal interruption	2	
Unknown	2	
Therapeutic abortion	1	
Suppurative thrombophlebitis		6
Pyelonephritis		3
Bronchopneumonia		2
Peritonitis		2
Tuberculosis		1
Boeck's sarcoidosis		1
Bulbar poliomyelitis		1
Infected abdominal pregnancy		1
Acute pseudomembranous enterocolitis		1
Total		33

gives the cause and incidence of fatal infections.

SEPTIC ABORTIONS

The frequency of criminal abortions is the single major factor that causes infection to maintain such a prominent position in maternal mortality tables of this vicinity. The relative ineffectiveness of antibiotics in these instances probably can be explained by at least two factors. First, there is usually dead placental tissue present with little or no blood supply that is an excellent pablum for bacteria and yet almost impossible to sterilize by blood-borne antibiotics. Second, due to the nature and cause of infection, these patients wait until they are acutely ill before presenting themselves for treatment, and consequently, have an overwhelming infection on admission.

Two patients in this group denied criminal interference although this was suspected, and two other charts failed to note whether or not this probability was present. The only therapeutic interruption listed in Table 5 was performed at another institution for severe renal infection at fourteen weeks. The patient subsequently developed postabortal sepsis originating in retained placental tissue and died from septic pulmonary infarcts in spite of massive antibiotic therapy.

SUPPURATIVE THROMBOPHLEBITIS

There are 6 definite cases in this group. All cases were treated promptly and by accepted measures but all had septic pulmonary infarcts on admission and were extremely toxic. Indeed, 2 were in extremis on admission. In addition to antibiotics, pelvic vein ligation has been invaluable in limiting the number of deaths due to this entity as well as those listed under septic abortions, when done according to the proper criterion as set forth by Collins and collaborators.[10] Unfortunately, pelvic ligation was done as a last resort in these instances and not according to the above recommendations.

TABLE 5
FATAL HEMORRHAGE

Ruptured uterus	6
Uterine atony (postpartal)	4
Placentae abruptio	4
Abdominal pregnancy	2
"Hemorrhagic diathesis" (Afibrogenemia)	2
Ruptured ectopic pregnancy	2
Placenta praevia	1
Placenta accreta	1
Total	22

HEMORRHAGE

The third most important cause of death even in this era of liberal blood transfusions is hemorrhage and it is from this, apparently, that a large portion of preventable deaths occur. These preventable deaths were for the most part due to errors in judgment inherent in any large training institution regardless of adequate staffs and ready availability of whole blood. Table 5 records the causes and incidence of fatal hemorrhage in this series.

RUPTURED UTERUS

This is the commonest cause of fatal hemorrhage. No Pitocin was administered to any patient in this group, which was one of advanced age and parity as emphasized by other reports.[6]

UTERINE ATONY

Of the 4 deaths from uterine atony at least 3 were preventable. Here also advanced age and parity are the most important factors. These hemorrhages were sudden, unexpected, and uncontrollable despite oxytocics and emergency measures.

ABRUPTIO PLACENTAE

The 4 fatal cases in this group could well have been placed in the toxemia

series since in all the abruptio placentae was merely a complication of pre-eclampsia. Their deaths, however, were directly related to the placental separation and they received the added emphasis accorded the seriousness of these emergencies by being considered alone. Little could be done to help these 4 patients once they arrived.

ABDOMINAL PREGNANCY

There were 2 deaths due to hemorrhage secondary to abdominal pregnancies. The first was that of a primigravida in whom an accurate diagnosis was made at term and a laparotomy done. The fetus was obtained and the placenta left in situ. However, after operation was completed, bleeding from the placental site developed and a second laparotomy was done in an attempt to control the hemorrhage. Bleeding continued in spite of all measures with fatal results.

In the second patient the placenta was attached to the anterior abdominal wall below the umbilicus and the operator incised the placenta upon opening the abdomen. All measures used were to no avail and the patient was promptly exsanguinated. Neither of these is judged a preventable death.

"HEMORRHAGIC DIATHESIS"

Both these deaths occurred in 1950 before fibrinogen was available and without doubt they are classic cases of afibrinogenemia complicating pre-eclampsia, and premature placental separation.

EMBOLISM

There were 14 fatalities due to embolism. In this group are presented the statistics of the "bland" emboli of phlebothrombosis, the amniotic fluid emboli, and a single case of air embolism. Septic clots have previously been considered under thrombophlebitis. Preventability is especially difficult to judge in this group but there seemed to be several instances of definitely preventable factors.

PHLEBOTHROMBOSIS WITH EMBOLISM

Of the 9 cases in this group, 4 seemed to have preventable factors. All but 2 developed thromboses and emboli subsequent to surgical procedures. Most age groups are represented and parity is apparently of little importance.

AMNIOTIC FLUID EMBOLISM

Amniotic fluid embolism occurred four times, giving an incidence of 0.34 per 10,000 live births. All occurred during labor or immediately after delivery without warning.

It is interesting to note that the 3 spontaneous occurrences were in relatively older women of advanced parity, while the patient in whom the embolism seemed to be induced by the version was only 19 years old and a primigravida. It appears that manipulation and tumultous labor should be viewed with the possibility of this occurrence in mind.

AIR EMBOLISM

Air embolism occurred once in this series. It was secondary to a difficult manual removal of the placenta under inadequate anesthesia..

LOWER NEPHRON NEPHROSIS

Without doubt the frequent and liberal use of blood increases the hazard of this entity. In this series all patients but one had multiple transfusions with at least one reaction. Rh incompatibility was obvious in one instance on recheck, while, in the remainder, the cause of the incompatibility was less apparent.

The possibility of immunization to little known or undiscovered blood group factors is increasingly probable due to the frequency of transfusions. Two patients had abruptio placentae and in one, this was apparently the sole cause of the lower nephron nephrosis. All patients died in the anuric phase in spite of accepted therapy. The artificial kidney was used in one instance. Undoubtedly routine Coombs' tests in addition to the cross-match as advocated by Kellner [7] are indicated. At least 6 of these 7 deaths must be classified as preventable.

SICKLE CELL DISEASE

The 8 deaths due to sickle cell disease all occurred in sickle-cell crisis. It has been estimated that 1 out of 5 obstetrical patients with sickle-cell disease dies during pregnancy.[8] The susceptibility of these patients to infection and thromboses, their

poor tolerance of blood loss, and our incomplete knowledge of the mechanism of sickle-cell crises has also been illustrated elsewhere.[8]

SUDDEN DEATH

Into this category of sudden death fall the 4 patients who died suddenly and in whom no definite diagnosis could be proved because permission for autopsy was denied.

ANESTHESIA

Three deaths were due to general anesthesia. One died of aspiration of vomitus during ethylene ether induction. Another died while receiving cyclopropane and the last suffered a ruptured esophagus from intubation under anesthesia.

NEOPLASM

Three deaths were due to neoplasm: 1 lymphoma of the anterior mediastinum, 1 acute monocytic leukemia and 1 theca cell tumor.

MISCELLANEOUS

The rest are all single cases. The one patient who died of cardiac failure had tetralogy of Fallot with pre-eclampsia. Another congenital anomaly (renal hypoplasia) caused death from renal insufficiency at thirty-eight weeks. One individual died of acute porphyrinuria. The cases of arsenical poisoning and infectious hepatitis have been reported elsewhere.[9] There were two accidents: a patient who suffered burns of 50 per cent of her body surface at six months, and another who had a subdural hematoma from a fall in the postpartal period. The diabetic patient in this group was severe and sensitive to insulin. The last patient had asthma and was asphyxiated by a mucus plug during a severe attack.

COMMENT

The maternal death rate at this institution is showing a continuing reduction despite increasing admissions that tax the facilities of the obstetrical unit to their limit and in spite of the natural gravitation of much of this state's obstetrical pathology to this hospital. Errors in judgment that are inherent in any teaching institution are present in this series, especially in the deaths due to hemorrhage. Many factors seem to play major roles in the declining maternal death rate. Most important is a well trained staff sufficiently large to cope with the problems that arise. Patient education is also essential.

In addition, the striking decline of deaths due to toxemia is undoubtedly the result of a greater knowledge of the pathophysiology of this disease, allowing improved methods of antihypertensive therapy. Infection death rates have diminished due to effective chemotherapeutic and antibiotic agents in addition to pelvic vein ligation when indicated.[10, 11]

Ready availability of whole blood induced a reduction in the number of fatal hemorrhages. The advantage of liberal transfusions has, however, caused an increase in the frequency of lower nephron nephrosis which is most often due to transfusion reactions, apparently due, in turn, to blood group factors whose presence is not obvious on routine cross-matching and Rh typing. Hence the institution of the Coombs' test routinely, as advocated by Kellner, in addition to cross-matching and Rh typing, is mandatory especially in patients who have previously been transfused or in whom large and repeated administration of whole blood is being contemplated. In this manner only can incompatibilities due to little known or unknown blood group factors be made apparent.[7]

That the incidence of fatal embolism (except septic emboli) is unchanged is obvious. The largest number of emboli occur secondary to phlebothrombosis, and a further reduction in the incidence of bland emboli is possible only by meticulous observation in the postoperative period. Prophylactic anticoagulant therapy may be indicated in certain complicated obstetrical cases that require long periods of bed rest and apparently in those patients in whom evisceration has occurred.

Air embolism is preventable, and the possibility is always present during intrauterine manipulations, but it must be extremely infrequent. Fatal amniotic fluid embolism developed most frequently in pa-

tients of advanced obstetric age and parity, especially those in whom tumultuous labor was present. The only exception was the youthful primigravida in whom intrauterine manipulation allowed the fatal embolism to occur.

Sickle-cell disease is a grave complication of parturition, and experiences at this institution have been detailed elsewhere.[5] The remaining entities are a heterogeneous group of accidents and diseases that occurred during the period of this study and caused a maternal death. Their limited number permits no conclusions. That heart disease was relegated to this group merely reflects the low incidence of significant heart disease among the childbearing population in this area.

SUMMARY

1. An eleven year survey of maternal mortality at Charity Hospital during which time there were 117,450 live births is presented.

2. A marked and continuing reduction in the maternal death rate resulting in an incidence of 12.00 maternal deaths per 10,000 live births is recorded.

3. The lowest rate was recorded in 1955 when there were 4.83 maternal deaths per 10,000 live births. There were 12,416 live births during that year.

4. Major factors allowing this decrease were: (a) an adequate, well trained staff, (b) more advanced knowledge of toxemia of pregnancy, (c) effective chemotherapeutic and antibiotic agents, and (d) ready availability of whole blood.

5. Suggestions for decreasing the incidence of lower nephron nephrosis were presented.

6. The incidence of deaths due to embolism (except septic emboli) was unchanged, and suggestions for its reduction are presented.

7. A diverse miscellaneous group that is too small for analysis was presented in detail.

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CONGENITAL "CLASPED THUMB" *

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Two cases resembling congenital "clasped thumb" were described by Miller,[1] in 1944, under the name of "Pollex Varus." One case was an eight weeks old infant and the other was a seventeen year old male orderly. In 1952, White[2] referred to 8 similar cases as "The Infant's Persistent Thumb Clutched Hand;" 5 were children and 3 were adults. In 1955, Weckesser[3] described 5 cases of congenital "Clasped Thumb;" 3 cases were infants and the other 2 were children, two and nine years of age, respectively.

ETIOLOGY

Etiology of this condition is acknowledged to be congenital agenesis or absence of the extensor pollicis brevis, which results in weak or absent active extension of the metacarpophalangeal joint. Also, the wrist assumes the attitude of ulnar deviation, for it should be remembered that the extensor pollicis brevis muscle is an important motor for radial deviation

* This paper was read before the annual meeting of the Louisiana Orthopaedic Association at Point Clear, Alabama, on December 7, 1957.

of the wrist as well as for extension of the metacarpophalangeal joint (Fig. 1).

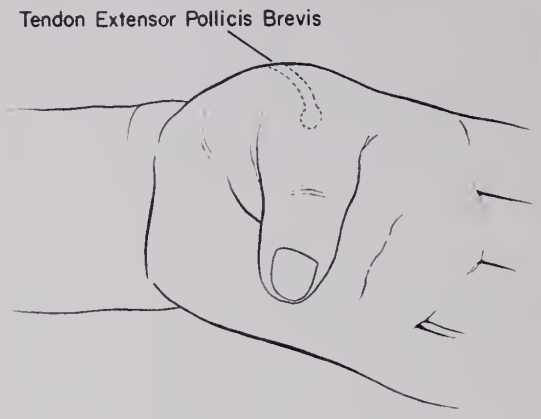


Figure 1. Defective metacarpophalangeal extension is caused by agenesis or absence of the extensor pollicis brevis.

CLINICAL FEATURES

Clinical features include greatest incidence of discovery in infants. The condition is easily overlooked until the baby starts to grasp objects, since normally the infant seldom opens the thumb during the first three or four months of life.[4] Occasionally a patient may tolerate the condition until adult life. Rarely is the mother certain of the exact date when the thumb becomes affected, and the presenting complaint is usually, "The baby does not open the thumb." Characteristic appearance of the deformity is: (1) flexion attitude of the thumb at the metacarpophalangeal joint, (2) thumb is turned in the palm, (3) ulnar deviation of the wrist, (4) hypermobility of the metacarpophalangeal joint (variable). We have seen 5 cases which fit the description of congenital "clasped thumb." All were discovered in infants under six months of age (Fig. 2). In 3 cases, deformity was limited to the thumbs; 2 of these were unilateral and 1 was bilateral. In the other 2 cases, in addition to bilateral thumb deformities, there were concurrent congenital deformities in the extremities, such as elbow or knee deformities, calcaneovalgus and talipes equinovarus.

DIAGNOSIS

Differential diagnosis includes poliomyelitis, peripheral nerve injury, congenital



Figure 2. There is no active metacarpophalangeal extension and the wrist assumes an attitude of ulnar deviation.

contracture or dislocation of the metacarpophalangeal joint, thumb of spastic paralysis, arthrogryposis, and stenosing tenosynovitis of the flexor pollicis longus tendon.[5] All of these conditions can be excluded by careful examination.

If diagnosis is made early in childhood, treatment by corrective casts is highly successful (Fig. 3). Cast immobilization is usually necessary for a period of three to seven months and casts are changed every few weeks to allow for growth of the extremity. If the condition is neglected until later years, correction by casts is unlikely, and tendon transplantation or metacarpophalangeal arthrodesis



Figure 3. When early diagnosis is made, corrective casts are usually successful.

is usually indicated. The tendon of the extensor digitorum communis is transferred into the base of the proximal phalanx of the thumb on its dorsum. This tendon is less specialized than the extensor indicis proprius, and extensor power of the index finger is not significantly al-

tered by its use. Metacarpophalangeal arthrodesis is the method of choice in adults with long standing deformity.

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THE TECHNIQUE OF RADICAL LARYNGECTOMY IN CARCINOMA OF THE LARYNX * †

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New Orleans

Although this contribution is concerned only with the technique of total laryngectomy for carcinoma of the larynx, a few words must be said in explanation and justification of a policy which requires radical enucleative surgery of this kind. Both explanation and justification are simple. Carcinoma of the larynx is a lethal disease if its course is not interrupted. Unless the disease is seen in its early stages, only radical extirpation of the growth offers the patient any chance of survival. Furthermore, it must always be assumed that the tumor has extended histologically beyond the boundaries evident grossly, and apparently normal tissue must therefore be removed along with the tissue that is obviously diseased.

For these reasons, it has been our policy since 1950 to employ radical enucleative surgery in the primary treatment of patients with cancer of the larynx who are admitted to the Ear, Nose and Throat Service of the Tulane University School of Medicine at Charity Hospital of Louisiana at New Orleans. Any other policy would be self-defeating, for the majority of our patients, many of whom are Negroes, are seen only when the disease is far advanced.

Total laryngectomy is considered to be indicated when the growth has extended beyond one vocal cord, whether the extension is above or below the cord or across the midline or is of the infiltrative variety, in which the cord is fixed. Lesions extending beyond the larynx into the pharynx, piriform sinus or postcricoid area are treated by laryngectomy combined with en bloc neck dissection.

All our emphasis is upon surgery as the primary treatment of carcinoma involving the larynx. We utilize irradiation only in cases in which the patient refuses surgery or in which his disease is so extensive or his general condition so poor that the mere act of operation would be likely to be fatal.

The technique which we employ comprises removal of the larynx and the hyoid bone with the adjacent ribbon muscles en masse (Fig. 1). It may include excision of the base of the tongue, portions of the pharynx and esophagus, and the adjacent lobe of the thyroid if this seems necessary to encompass the disease. This technique is, in short, the wide-field type of laryngectomy, in contrast to the subperichondral or narrow-field excision.

Since 1950, we have performed surgery of this type on more than 80 patients with carcinoma of the larynx. There were no surgical deaths, as might be expected, in view of improved surgical methods, competent anesthesia, and control of infection by the antibiotics now available. Our morbidity has also been gratifyingly low. Eight of the 20 patients operated on five years ago or longer are known to be living and well at this time, and our observations suggest that with the contin-

* Presented at the Seventy-seventh Annual Meeting of the Louisiana State Medical Society, May 7, 1957, New Orleans.

† From the Department of Otolaryngology of the Tulane University of Louisiana School of Medicine.



Figure 1. Resected larynx containing extensive malignant tumor involving the epiglottis. The hyoid bone, which is resected en masse with the larynx, is not shown in this view.

ued use of the radical procedure, we are likely to show a decided increase in the rate of survival as time passes. Schall's [1] 1953 report on 165 cases of carcinoma of the larynx in which radical surgery was performed between 1931 and 1948 showed 97 patients living and well for five years or longer and 3 deaths from other causes after the five-year period had passed. This is a remarkably hopeful record, especially in view of the fact that with proper voice training, 98 per cent of the surviving patients were completely rehabilitated.

To persuade the patient that he will be able to talk again is, in fact, the most important feature of our own preoperative regimen. A few days before the operation, he is introduced to a laryngectomized person who has mastered esophageal speech. He is thus made aware of the hopeful outlook on his own postoperative status and he becomes convinced that he too can learn to talk again. Practice in belching before the operation permits him to perform this act more promptly after surgery and thus expedites his training in esophageal speech.

TECHNIQUE

Laryngectomy is preferably performed under nitrous oxide anesthesia combined with sodium pentothal (thiopental sodium), after preliminary cocainization of the pharynx and larynx. The intratracheal technique is used. In cases in which growths are fungating and so large that they partially occlude the airway, the anesthesia tube is inserted directly into the trachea after a preliminary tracheotomy. The same technique is used in patients previously subjected to tracheotomy; the first step of the operation is to insert the tube through the existing incision.

The approach to the lesion is through a vertical midline incision through the skin and subcutaneous tissue. The incision is begun 2 cm. above the hyoid bone and extends downward over the eminence of the thyroid cartilage to the suprasternal notch, from which a ring of skin and subcutaneous tissue is removed, for later placement of the tracheal stoma. This incision provides adequate exposure for removal of the larynx, hyoid bone, the upper portion of the trachea, and such adjacent structures as may require removal. It is easily modified to encircle a previous tracheotomy incision.

The skin flaps are reflected laterally in the fascial plane just over the sternohyoid and omohyoid muscles, thus exposing the anterior surface of the larynx and hyoid bone with their attached muscles. The sternohyoid and omohyoid muscles, which lie most superficially, are transected at their insertion into the hyoid bone and are then reflected. If they are grossly free of disease, they are preserved to facilitate closure of the wound. They can, however, be sacrificed with impunity.

Mobilization of the larynx and hyoid bone begins with separation of the suprahyoid muscles and tendons from the hyoid bone; this technique permits the en masse removal of these structures and also per-

mits a wider margin of excision around the epiglottis.

The sternothyroid and thyrohyoid muscles, which cover the anterior surface of the larynx, are allowed to remain in situ and are removed with the larynx and hyoid bone. The sternothyroid muscle is sectioned on each side close to its origin, to expose the lobes of the thyroid.

The thyroid gland is divided in the midline between hemostats, and hemostasis is secured by a running suture on each wound edge. The superior portion of each lobe is reflected from the cricoid cartilage and the inferior surface of the larynx. If this line of dissection seems to run too close to the diseased portion of the larynx, the adjacent lobe of the thyroid is resected with the larynx and other structures, or, if necessary, both lobes are removed.

The inferior constrictor muscle is cut bilaterally by sharp dissection as it crosses the lateral border of the thyroid cartilage. This incision is carried up to include the superior cornu of the larynx.

The superior laryngeal vessels, which run between the cornu of the larynx and the hyoid bone and pierce the thyrohyoid membrane, are clamped, cut and ligated. With this step, the larynx and hyoid bone are now completely mobilized except for the attachments to the trachea below, the base of the tongue above, and the upper esophagus and pharynx underneath.

At this stage of the procedure the trachea is opened and the anesthesia tube placed at the beginning of the operation is removed and is reposited in the trachea. It must fit snugly within the trachea, to provide water-tight closure for the administration of the anesthetic during the removal of the larynx. It is anchored to the lower edge of the tracheal incision by a safety pin or suture.

The trachea is ordinarily opened between the second and third rings, but it can be sectioned at any level between the first and fourth rings. The incision is slanted upward and posteriorly. A lip of mucosa is removed from the posterior tracheal wall if there is a margin of normal tissue measuring at least 2 cm. between the cut edge of the trachea and the boundary of the tumor. Otherwise, this step is omitted.

The larynx is opened above the hyoid bone, on the side opposite to the lesion and lateral to the epiglottis. With the attached hyoid bone it is separated from the base of the tongue, the trachea, and the upper esophagus and pharynx (Fig. 2). The incision employed provides full



Figure 2. Surgical field just before section of pharynx and larynx and en masse removal of larynx and hyoid bone.

visualization of the laryngeal tumor during its removal and also permits removal of a wide margin of normal tissue along with the resected structures; as a rule, at least 1.5 cm. of normal tissue is left between the margin of the tumor and the line of excision. As much of the pharynx and esophagus as is necessary is removed to suit the exigencies of the individual case.

Careful hemostasis is accomplished after the larynx and attached structures are removed. Then a feeding tube (Levin type) is inserted before closure of the pharynx is begun. The base of the tongue and the anterior pharyngeal mucosa are united by a transverse line of sutures. This technique helps to prevent stricture and aids in the development of esophageal speech since it preserves a good upper esophagus and pharyngeal pouch.

The pharyngeal closure is re-enforced with an overlap from the sternohyoid and omohyoid muscles, all dead space thus being obliterated. The skin and subcutane-

ous tissues are approximated with vertical mattress sutures. Prevention of infection by antibiotics has made it possible to eliminate all drainage, in the usual case, except a small nylon drain in the wound.

The tracheal stoma is sutured to the skin of the suprasternal notch by accurately placed sutures of #0000 silk. Retention sutures in the trachea are not regarded as necessary. After a large tracheal tube has been inserted, a fairly large pressure dressing is applied.

POSTOPERATIVE MANAGEMENT

The postoperative routine follows the principles of management of any major procedure on the neck. Hospitalization is seldom necessary beyond a week. At this time the sutures are removed, as is the feeding tube, and the patient is discharged. He takes soft diet for a week, then resumes his usual full diet. The tracheal tube is worn from one to two months.

Three weeks after operation the patient is referred to the speech clinic at the Tulane University School of Medicine, to learn esophageal speech. Competent speech therapists can teach a cooperative patient to talk by this route within four to six weeks.

At the end of three or four weeks the patient has fully regained his health and strength (Fig. 3). At the end of four to six weeks he is completely rehabilitated. He can therefore return to his usual occupations with the assurance that the radical surgery which he has undergone will not interfere with his normal way of life and has given him every possible chance of being cured of his malignant tumor.



Figure 3. A. Preoperative view of carcinoma of larynx.



Figure 3. B. Postoperative view. This picture was taken four weeks after operation. The tracheal tube had already been discarded.

SUMMARY

Carcinoma of the larynx is a lethal disease. It is frequently observed in such an advanced stage that only radical extirpative surgery offers the patient any prospect of survival. This policy has been followed on the Tulane University School of Medicine service in Charity Hospital of Louisiana at New Orleans for the last seven years.

The technique employed is described. It has been used in more than 80 cases, with no surgical deaths and with gratifyingly low morbidity. Esophageal speech is readily taught after operation, and the patient returns to his former occupation in four to six weeks.

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DANGERS OF THE FORAND "AFL-CIO" BILL HR 9467

The issue and dangers of State Socialism as introduced by compulsory sickness insurance and medical care plans are again before the people of this nation. An amendment to the Social Security Act has been introduced by Representative Aime Forand of Rhode Island. Under this bill it is proposed that all persons over 65, who are eligible to receive Social Security benefits (whether or not they are receiving them) will be eligible for sixty days of hospitalization in any twelve-month period.

This in actuality is a socialized medicine proposal and is essentially the same as those of 1941-1951, and a succession of bills spoken of as the Wagner-Murray-Dingell bills which called for "National Compulsory Health Insurance." The difference is that the present proposal applies to a smaller segment of the population at this time. The beneficiaries would be the approximately twelve to thirteen million persons on the Social Security rolls eligible to receive Old Age and Survivors benefits. If enacted, the age limits would be progressively extended by anticipated legislation, such that within a few years the entire "National Compulsory Health Insurance" scheme would rapidly come into operation.

The American Medical Association has repeatedly opposed compulsory health insurance and is unequivocally opposed to this new version. Opposition to this precipitate and revolutionary proposal is great. Along with the AMA are the American Farm Bureau Federation, the National Retailers Federation, the U. S. Chamber of Commerce, life and health insurance industries, the National Association of Manufacturers, and various other organizations who are interested in arresting the march of socialism. The American Hospital Association, on December 1, announced that "it believes that the Forand Bill (HR 9467) is not a suitable solution to the problem of financing the hospital needs of the aged." In summarizing its objections to the Forand Bill, the statement of the AHA continued:

1. "Eligibility of aged beneficiaries is based on attainment of prescribed ages without regard to their employment status and thus invites a progressive reduction of these age levels with the ultimate possibility of a total program of government financed hospital care."

2. "The bill makes possible the provision of care for other than health reasons."

3. "The bill provides inadequate safeguards against governmental interference with the actual operation of hospitals.

Such interference would most likely hamper evolution of patterns of hospital service to the detriment of patient care."

The Association also said that it believes "that every realistic effort should first be made to meet these needs promptly through other mechanisms utilizing existing systems of voluntary prepayment." If this approach does not appear workable within the immediate future, "the use of social security to provide the mechanism to assist in the solution of the problems of financing hospital needs of the retired aged may be necessary ultimately."

Besides the objection that this bill is creeping socialism, other arguments against this plan exist which should prevent its adoption. The number of persons over 65 is actually about 9 per cent of the total population. Of these, it is estimated that one-third are medically indigent and should be eligible for assistance on a local basis. This permits a more effective determination of the proper distribution of such assistance. At present, the medical profession and the hospitals are providing adequate service.

The coverage provided by voluntary prepayment sickness insurance is spreading year by year. There has been 155 per cent increase in ten years, and 66.3 million are now covered by these policies. Forty per cent of the people who entered hospitals last year had insurance company policies to help pay the cost. It would seem to be most undesirable to discourage people from providing for their own future care. It is obvious that the voluntary approach to the problem of medical care is working and is responsible for the achievements in the field of health. In due time it will be adequate to solve the problem of hospitalization for the aged. The voluntary approach should not be abandoned now.

It is recognized that labor unions exert pressure for the government to take over with a National Health Insurance scheme. As recently as September 26, Walter Reuther stated: "I think it can be said fairly that while medical societies may have entered prepayment reluctantly in order to avert government medicine, labor entered voluntary health insurance reluctantly because a government program was not available." The implications of this statement of a union leader should be considered along with the statement of President David B. Allman of the AMA: Labor union demands "are so great as to make voluntary health insurance economically unsound. Thus, voluntary insurance would be made to appear undesirable or unequal to the task, and the idea of complete government control of all health insurance would thereby be fostered."

It should be obvious that if this legislation represented in the Forand bill is enacted the general principle that the federal government has the right to control that which it subsidizes will be maintained with legislative and judicial action produced under labor pressure. In such a situation hospitals that participate in any part of this subsidy will lose their autonomy and their effectiveness as community instruments. They will become a part of a massive bureaucracy and evolve as cathedrals of perfunctory medical care.

The proposal to make the Forand Bill palatable to certain groups in the health field, such as the AHA and the Blue Cross, which provide the administration of the benefits through the nonprofit organization, such as the Blue Cross, is in no sense a protection against bureaucratic dominance. If such a scheme were in operation its direction would be swept by further legislative action into the bureaucratic control.

Successive efforts to enact the legislation supporting state medicine by increments have been opposed by organized medicine consistently. The Forand Bill is another effort to establish state medicine. It should be opposed by every physician and every citizen who abhors creeping socialism.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

REPORT ON ACTIONS OF THE HOUSE OF DELEGATES

AMERICAN MEDICAL ASSOCIATION

ELEVENTH CLINICAL MEETING

Dec. 3-6, 1957 — Philadelphia

This report covers only a few of the many important subjects dealt with by the House and is not intended as a detailed report on all actions taken.

Fluoridation of public water supplies, free choice of physician, the Heller Report on organization of the American Medical Association, the Forand Bill providing hospital and surgical benefits for Social Security beneficiaries, guides for occupational health programs covering hospital employees, distribution of Asian influenza vaccine and guides for the medical rating of physical impairment were among the variety of subjects acted upon by the House of Delegates at the American Medical Association's Eleventh Clinical Meeting held Dec. 3-6 in Philadelphia.

Dr. Cecil W. Clark of Cameron, Louisiana, was named 1957 General Practitioner of the Year after his selection by a special committee of the Board of Trustees for outstanding community service. Dr. Clark, 33-year-old country doctor who was a medical hero during Hurricane Audrey last June, was present at the meeting to receive the gold medal which goes with the annual award.

Speaking at the opening session on Tuesday, Dr. David B. Allman of Atlantic City, A.M.A. President, called for "more freedom, not less, in America and in the medical profession." Dr. Allman urged delegates to embark on local action campaigns to enlist full community support in opposition to the Forand Bill, a pending Congressional proposal which would provide hospital and surgical benefits for persons who are receiving or are eligible for Social Security retirement and survivorship payments. The Forand Bill, he said, is "cut from the same cloth" as national compulsory health insurance and "emanates from the same minds."

Total registration at the end of the third day of the meeting, with half a day still to go, had reached 5,375, including 2,562 physician members.

Fluoridation of Water

In settling the most controversial issue at the Philadelphia meeting, the House of Delegates approved a joint report of the Council on Drugs and the Council on Foods and Nutrition which endorsed the fluoridation of public water supplies as a safe and practical method of reducing the incidence of dental caries during childhood. The 27-page report on the study which was directed by the House at the Seattle Clinical Meeting one year ago contained these conclusions:

"1. Fluoridation of public water supplies so as to provide the approximate equivalent of 1 ppm of fluorine in drinking water has been established as a method for reducing dental caries in children up to 10 years of age. In localities with warm climates, or where for other reasons the ingestion of water or other sources of considerable fluorine content is high, a lower concentration of fluoride is advisable. On the basis of the available evidence, it appears that this method decreases the incidence of caries during childhood. The evidence from Colorado Springs indicates as well a reduction in the rate of dental caries up to at least 44 years of age.

"2. No evidence has been found since the 1951 statement by the Councils to prove that continuous ingestion of water containing the equivalent of approximately 1 ppm of fluorine for long periods by large segments of the population is harmful to the general health. Mottling of the tooth enamel (dental fluorosis) associated with this level of fluoridation is minimal. The importance of this mottling is outweighed by the caries-inhibiting effect of the fluoride.

"3. Fluoridation of public water supplies should be regarded as a prophylactic measure for reducing tooth decay at the community level and is applicable where the water supply contains less than the equivalent of 1 ppm of fluorine."

Free Choice of Physician

Acting on the issue of free choice in relation to contract practice, the House passed a resolution which reaffirmed approval of previous interpretations of the Principles of Medical Ethics by the Association's Judicial Council and directed that they be called to the attention of all constituent associations and component societies. One Council opinion, issued in 1927 and reaffirmed in Philadelphia, stated that the contract practice of medicine would be determined to be unethical if "a reasonable degree of free choice of physician is denied those cared for in a community where other competent physicians are readily available." The resolution also cited a Council opinion, published in the October 19, 1957, issue of The Journal of the A.M.A., which stated that the basic ethical concepts in both the 1955 and 1957 editions of the Principles of Medical Ethics are identical in spite of changes in format and wording. This opinion added that "no opinion or re-

port of the Council interpreting these basic principles which were in effect at the time of the revision has been rescinded by the adoption of the 1957 principles."

The 1927 Council report also pointed out that "there are many conditions under which contract practice is not only legitimate and ethical, but in fact the only way in which competent medical service can be provided." Judgement of whether or not a contract is ethical, the report said, must be based on the form and terms of the contract as well as the circumstances under which it is made.

In another action related to the issue of free choice, the House adopted a resolution condemning the current attitude and method of operation of the United Mine Workers of America Welfare and Retirement Fund "as tending to lower the quality and availability of medical and hospital care to its beneficiaries." The resolution also called for a broad educational program to inform the general public, including the beneficiaries of the Fund, concerning the benefits to be derived from preservation of the American right to freedom of choice of physicians and hospitals as well as observance of the "Guides to Relationships Between State and County Medical Societies and the UMWA Welfare and Retirement Fund" which were adopted by the House last June.

The Heller Report

Acting on the report of the Committee to Study the Heller Report on Organization of the American Medical Association, the House reached the following decisions on ten specific recommendations:

1. The office of Vice-President will be continued as an elective office.

2. The offices of Secretary and Treasurer will be combined into one office to be known as Secretary-Treasurer, and that officer will be selected by the Board of Trustees from one of its number.

3. The duties of the Secretary-Treasurer will be separated from those of the Executive Vice-President.

4. The office of General Manager will be discontinued, and the new office of Executive Vice-President will be established. The latter, appointed by the Board of Trustees, will be the chief staff executive of the Association.

5. The Council on Medical Education and Hospitals and the Council on Medical Service will continue as standing committees of the House of Delegates, but their administrative direction will be vested in the Executive Vice-President.

6. The voting members of the Board of Trustees will be limited to eleven—the nine elected Trustees, the President and the President-Elect. The Vice-President and the Speaker and Vice-Speaker of the House of Delegates will attend all Board meetings, including executive sessions, with the right of discussion but without the right to vote.

7. The House disapproved of the proposal to elect the Trustees from each of nine physician-population regions.

8. The office of Assistant Secretary will be discontinued, and a new office of Assistant Executive Vice-President will be established.

9. The Committee on Federal Medical Services will be retained as a committee of the Council on Medical Service and will not become a part of the Council on National Defense.

10. The Speaker of the House will appoint a joint and continuing committee of six members, three from the Board of Trustees and three from the House, to redefine the central concept of A.M.A. objectives and basic programs, consider the placing of greater emphasis on scientific activities, take the lead in creating more cohesion among national medical societies and study socio-economic problems.

The accepted recommendations were referred to the Council on Constitution and By-laws with a request to draft appropriate amendments for consideration by the House at the 1958 annual meeting in San Francisco.

The Forand Bill

The House condemned the Forand Bill as undesirable legislation, approved the firm position taken in opposition to it and expressed satisfaction that the Board of Trustees has appointed a special task force which is taking action to defeat the bill. In a related action, giving strong approval to Dr. Allman's address at the opening session, the House adopted a statement which said:

"It is particularly timely that our President has so forcefully sounded the clarion call to the entire profession for emergency action. With complete unity, definition and singleness of purpose, closing of ranks with all age groups and elements of our organization we must at this time stand and be counted. Thus we can exert the physician's influence in every possible direction against invasion of our basic American liberties in the form of proposed legislation alleged to compulsorily insure one segment of the population against health hazards at the expense of all."

Health Programs for Hospital Employees

A set of "Guiding Principles for an Occupational Health Program in a Hospital Employee Group" was approved by the House. The guides were developed by a joint committee of the American Medical Association and the American Hospital Association and already had been formally approved by the A.H.A. They include these statements:

"Employees in hospitals are entitled to the same benefits in health maintenance and protection as are industrial employees. Therefore, programs of health services in hospitals should use the tech-

niques of preventive medicine which have been found by experience in industry to approach constructively the health requirements of employees.

"It is essential that employee health programs in hospitals, as in industry, be established as separate functions with independent facilities and personnel. The fact that hospitals are engaged in the care of the sick as their primary function does not alter the necessary organizational plan for an effective occupational health program."

Asian Influenza Vaccine

The House considered three resolutions dealing with the Asian influenza immunization program and then adopted a substitute resolution calling attention to "certain inadequacies and confusions in the distribution of vaccines" and directed the Board of Trustees to seek conferences through existing committees "with a view to establishing a code of practices regulating the future distribution of important therapeutic products, so that the best interest of all the people may be served." The resolution pointed out that the American Medical Association already has a joint committee with the American Pharmaceutical Association and the National Association of Retail Druggists, in addition to a liaison committee with the Drug Manufacturers Association.

Medical Rating of Physical Impairment

The House accepted a 115-page "Guide to the Evaluation of Permanent Impairment of the Extremities and Back" which was developed by the Committee on Medical Rating of Physical Impairment as the first in a projected series of guides. The delegates commended the committee for doing "a superb job on this difficult subject" and expressed pleasure that the guides will be published in The Journal of the A.M.A. The guides are expected to be of particular help to physicians in determining impairment under the new disability benefits program of the Social Security Act.

Miscellaneous Actions

Among a wide variety of other actions, the House also:

Directed that a new committee be established in the Council on Industrial Health to study **neurological disorders in industry;**

Noted with approval the establishment of the American Medical Research Foundation, which will initiate and encourage necessary **medical research** and correlate and disseminate the results of studies already under way;

Decided that informational materials which are sent to A.M.A. delegates should also be sent to all **alternate delegates;**

Affirmed that it is within the limits of ethical propriety for physicians to join together as partnerships, associations or other **lawful groups** provided that the ownership and management of the affairs thereof remain in the hands of licensed physicians;

Instructed that the appropriate committee or council should engage in conferences with **third parties** to develop general principles and policies which may be applied to the relationship between third parties and members of the medical profession;

Urged state medical society committees on aging and insurance to make continuing studies of **pre-retirement financing of health insurance** for retired persons;

Endorsed a suggestion that the Committee on Federal Medical Services sponsor a national conference on **veterans' medical care** during 1958;

Asked the Board of Trustees to study the feasibility of having the Association finance a thorough investigation of the **Social Security** system by a qualified private agency;

Suggested that physicians and their friends make a vigorous effort to obtain Congressional enactment of the **Jenkins-Keogh Bill;**

Approved the "Suggested Guides to Relationships Between Medical Societies and **Voluntary Health Agencies**";

Strongly recommended that a completely adequate and competent medical department be established in the **Civil Aeronautics Administration** directly responsible to the CAA Administrator, and

Congratulated the General Electric Company for its medical television presentations on the subject of **quackery.**

Opening Session

At the Tuesday opening session Rear Admiral B. W. Hogan, Surgeon General of the U. S. Navy, presented the Navy Meritorious Public Service Citation to Dr. Dwight H. Murray of Napa, Calif., immediate past president of the Association. Contributions to the American Medical Education Foundation, for financial aid to the nation's medical schools, were presented by four state medical societies: California, $143,043.25; Utah $10,390; New Jersey, $10,000, and Arizona, $8,040. The Interstate Post Graduate Medical Association of North America gave $1,000, and the Illinois State Medical Society announced that it was adding $10,000 to the $170,450 presented at the New York meeting last June.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SEMINAR ON RHEUMATIC DISEASES

Under the auspices of the Louisiana Chapter of the Arthritis and Rheumatism Foundation, Members of the faculty of Louisiana State University School of Medicine and Tulane University School of Medicine will present a one-day seminar on diagnosis and treatment of the rheumatic diseases. There will be no registration fee.

The seminar will be held in Hutchinson Auditorium, 1430 Tulane Avenue, on Saturday, February 1, 1958, beginning at 9:00 A.M. Dr. Russell L. Cecil, Medical Director of the National Arthritis and Rheumatism Foundation, will be guest speaker. Participants in the course will be Drs. W. R. Akenhead, Irvin Cahen, M. R. Jeffrey, Maridel Saunders, W. H. Schindel, T. E. Weiss and Guy T. Williams. The medical public will be welcome.

AMERICAN PHYSICIANS' ART ASSOCIATION

The American Physicians' Art Association was organized in 1936 at San Francisco during the annual meeting of the American Medical Association in that city. The first exhibit was held that year, and consisted of the art works of a number of San Francisco physicians. Annual art exhibits are held at the meeting of the American Medical Association, and the organization has steadily grown to a membership of over 450 physicians.

Physicians with hobby interests in painting, photography, sculpture, or wood carving are encouraged to participate in the activities of the American Physicians' Art Association. If you desire further information about this group, please communicate with Dr. C. Grenes Cole, Secretary-Treasurer, Louisiana State Medical Society. We hope to hold local exhibits, one of the first of which will be at the annual meeting of the Louisiana State Medical Society, which precedes the exhibit at the annual meeting of the American Medical Association by about one month. Art pieces submitted at the local exhibit may also be mailed to the exhibit at the annual meeting of the American Medical Association. Regular membership dues include the fees for hanging two art pieces at the national exhibit.

SOUTHERN MEDICAL ASSOCIATION

The largest meeting in 51 years of the history of the Southern Medical Association was held in Miami Beach, November 11-14.

The unofficial registration total was 5,761 of which 3,133 were physicians.

At the conclusion of the meeting Dr. W. Kelly West of Oklahoma City, Oklahoma, was installed as President succeeding Dr. J. P. Culpepper, Jr., Hattiesburg, Mississippi. Other officers elected at this meeting were:

President-Elect, Dr. Milford O. Rouse, Dallas, Texas

First Vice-President, Dr. Edwin H. Lawson, New Orleans, La.

Second Vice-President, Dr. Donald F. Marion, Miami, Florida

Elections by the Council included Council Chairman, Dr. Fount Richardson, Fayettville, Arkansas; Council Vice-Chairman, Dr. Harry Lee Claud, Washington, D. C.; Member of Board of Trustees, Dr. J. P. Culpepper, Jr., Hattiesburg, Mississippi.

Recipient of the Association's Research Medal was Dr. Joseph M. Hill of Dallas, Texas. Dr. Hill is the sixteenth winner of this outstanding award for scientific research which was established in 1912.

Dr. Kenneth M. Lynch, President and Dean of the Faculty of the Medical College of South Carolina, received the Association's Distinguished Service Award.

The future schedule of meetings is as follows:
1958—New Orleans, Louisiana, November 3-6
1959—Atlanta, Georgia, November 9-12

1960—Baltimore, Maryland, November 14-17
1961—Dallas, Texas, November 13-16
1962—Miami Beach, Florida

PREVIEW OF THE 1958 MLA MEETING

The Fifty-seventh annual meeting of the Medical Library Association will be held in Rochester, Minnesota from June 2 through June 6, 1958, with headquarters at the Hotel Kahler. The theme of the Rochester meeting will be "Advances in Medical Library Practice". Mr. Thomas E. Keys, Librarian of the Mayo Clinic, is Convention Chairman and letters of inquiry should be addressed to him.

A pre-convention activity is being planned for Saturday, May 31. A series of refresher courses embracing many fields of medical library work will be given. Classes will be made up from the following subjects: Administration, Acquisitions, Classification, Cataloging, Non-book materials, Photoduplication, Public Relations, Reference Work, Rare Books, History of Medicine, Bibliographic Services, Periodicals, Binding, Library Architecture, Equipment, and Medical Terminology.

It will be possible for each participant to take four courses during the day, two in the morning and two in the afternoon. Each session will be 1½ hours in length, the hour for a prepared lecture and a half hour for a discussion period.

Among the highlights of the regular program will be a panel discussion on what the medical specialists expect from the Medical Library. Speakers will be from the Mayo Clinic Staff. A one day trip is being planned to Minneapolis and St. Paul with visits to the University of Minnesota, The James J. Hill Reference Library and the Ramsey County Medical Library.

After a day in the Twin Cities the remainder of the program will be held in Rochester. There will be a Symposium on The Medical Center Library, and a session on American Medical History and Medical Librarianship.

Arrangements are being made for pre and post convention tours for those who may wish to explore some of the natural beauty of Minnesota. All medical librarians are cordially invited to attend.

MEDICAL RESEARCH FOUNDATION ESTABLISHED FOR TAY-SACH'S DISEASE AND ALLIED DISORDERS

A new non-profit foundation has been established to support and stimulate research, clinical, and educational programs in Tay-Sachs' disease and allied heredo-familial, neuro-degenerative diseases of infancy and childhood. The scope of the program will include, in addition to Tay-Sachs' disease, Niemann-Pick's disease, Infantile Gaucher's disease, Schilder's disease, Diffuse Sclerosis, Amyotonia Congenita, Friedreich's ataxia, and others. The foundation is known as National Tay-Sachs Association, Inc., New York Chapter, and is composed of parents who have afflicted children, interested laymen, and medical personnel in the field.

The foundation is cooperating with the existing clinical and research program on Tay Sachs' disease and certain of these allied diseases at Jewish Chronic Disease Hospital in Brooklyn, New York. The hospital is presently conducting a special clinic for outpatient care of afflicted children, and is constructing a special ward for the care and observation of inpatient cases. Both of these programs are being conducted in conjunction with the laboratory research program of the Isaac Albert Research Institute of the hospital. A comprehensive genetic study is also being made of the pertinent hereditary patterns from histories supplied by the foundation and parents who have children under the care of the hospital. A counseling program is also offered.

The operation of the foundation is on a nationwide basis, and contact is being made for establishment of chapters in other metropolitan areas, in addition to the allied Tay-Sachs Association in Philadelphia. In order to further its work and, in particular, to prepare a substantial genetic study covering the entire country, physicians and hospitals are respectfully requested to make the existence of the foundation known to parents of children afflicted with these diseases.

For further information on the foundation and its work, write to Medical Committee, National Tay-Sachs Association, Inc., New York Chapter, P. O. Box 1250, G.P.O., New York 1, N. Y.

THE CIBA COLLECTION OF MEDICAL ILLUSTRATIONS

Publication of the third volume in the estimated nine-volume, twenty-year project to create for medicine the first definitive collection of authentic, full-color illustrations of every significant segment of the human body and diseases that affect it, was announced recently by CIBA Pharmaceutical Products Inc.

The artist of the entire series is the country's leading medical illustrator, Dr. Frank H. Netter of Norwich, Long Island. It was the popularity of Dr. Netter's full-color illustrations of normal and pathologic anatomy as teaching and reviewing aids that prompted CIBA to commission the publication of *The Ciba Collection of Medical Illustrations*. This unprecedented step was taken as a service to the medical profession without financial profit to the company.

The undertaking is so comprehensive and so vast that Dr. Netter will be devoting virtually the best of his productive years to completing it. Nine volumes, including several multiple issues,

such as the present section, have been planned. However, such painstaking detail, thorough research and wide collaboration are involved that it will take many years before the project will be completed. Two volumes have already been issued: "Nervous System" and Reproductive System."

Volume 3 is being developed in three parts. "Liver, Biliary Tract and Pancreas," just published, is actually Part III of this third volume. The decision to publish this section before Parts I and II was based on a survey which showed that the subject covered in Part III was second only to the nervous system in interest to the medical profession.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next scheduled examinations (Part II), oral and clinical for all candidates will be conducted at the Edgewater Beach Hotel, Chicago, Illinois, by the entire Board from May 7 through 17, 1958. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations as soon as possible.

COMMITTEE URGES WIDER USE OF TB VACCINE (BCG)

In spite of the dramatic drop in deaths from tuberculosis in recent years, the disease continues to be a major health problem in many areas.

One way of combatting the problem—mass vaccination of susceptible persons with BCG vaccine —was recommended in an article and editorial in the June 29 Journal of the American Medical Association.

The article was prepared by the medical advisory committee of the Research Foundation of Chicago. The foundation helps other organizations and individuals in developing methods and materials for preventing tuberculosis.

BCG vaccine derives its name, Bacillus Calmette-Guerin, from two French scientists who pioneered its development 30 years ago. Given to healthy persons, the vaccine causes the body to develop immunity to tuberculosis. Revaccination is necessary about every four years.

Some 150 million persons have been vaccinated with BCG throughout the world, and in many countries BCG vaccination is mandatory. Extensive studies have shown a "marked reduction" in the incidence of tuberculosis in vaccinated persons as compared with nonvaccinated persons.

BCG vaccination has not been used extensively in the United States, even though the American Trudeau Society has recommended that it be used for those individuals who will be unavoidably exposed to tuberculosis.

COUGH-SUPPRESSANT DRUG

Persistant and severe coughing can now be practically stopped in its tracks by a completely safe drug called noscapine, which has a unique advantage in that it can be taken repeatedly or in increased doses by all types of patients, young or old, without ill effect.

The news that the long search for such an effective, non-addicting cough-suppressant has been successful was disclosed by the Voice of America during a recent interview with Commissioner Harry J. Anslinger, U. S. Representative to the United Nations Commission on Narcotic Drugs, and Chairman of the Commission at its 12th Session.

Commissioner Anslinger cited a report to the Commission by Dr. Nathan B. Eddy of the U. S. Public Health Service in which Dr. Eddy stated that noscapine is as effective for cough relief as codeine, the long recognized standard for anti-cough remedies, and does not cause unpleasant effects. Moreover, such effects are not incurred even when the dosage is increased, if the occasion requires it. The Eddy report also declared that these advantages are particularly important for chronic coughers who must have relief over a long period of time.

With respect to stepping up the dosage, a spokesman for Merck & Co., Inc., which manufactures noscapine under the brand name 'Nectadon', declared that clinical results show that the dosages can be greatly increased without a proportionate increase in side effects, thus permitting wider medical use of a potent cough-suppressant in the treatment of chronic coughing. No other potent anti-cough drug is known to have this combination of valuable properties.

The Eddy report also noted that while noscapine (which is actually an old drug formerly called narcotine) is a natural ingredient of opium, it is chemically different from morphine and its derivatives. It has been proved through experience and specific tests to be completely safe and non-addicting.

CERVICODORSAL OUTLET SYNDROME DESCRIBED IN JOURNAL

Sewing pajama sleeves to the pajama coat and tying the wrists to the foot of the bed with a long piece of gauze were suggested today as treatment for a disorder known as "cervicodorsal outlet syndrome."

Cervicodorsal outlet syndrome is an all-inclusive term referring to hand, arm, and shoulder symptoms resulting from pressure in the cervicodorsal outlet—the region in which the nerves and vessels leave the neck and thorax and are transmitted to the arm.

One of the commonest predisposing factors is the prolonged elevation of the arms, particularly

sleeping with them above the head, Dr. Paul A. Nelson, Cleveland, said in the April 27 Journal of the American Medical Association.

To avoid this position, he recommended that the pajama sleeves above the elbow be sewed to the coat or that wrists be tied to the bedpost with a long piece of gauze. The gauze should be slack enough to allow the arms to move to all positions except above the head.

The syndrome occurs more often in women than in men and most frequently in the 20-to-40 age bracket, he said. It is frequently found among persons engaged in such occupations as hairdressing, painting, construction work, and switchboard operation.

The symptoms of the common form include aching, pain, numbness, coldness, tingling, "pins and needles," weakness or a dragging feeling, usually in the inner side of the hand but occasionally in the arm, shoulder, chest wall, and neck. In more serious cases there may be changes in the appearance of the hand, weakness of certain muscles, and swelling near the base of the neck.

MORE RESEARCH NEEDED IN COSMETIC FIELD

As cosmetics leave the "realm of luxury" and become items of necessity, more and better research into the fundamental properties of the skin also becomes a necessity, according to a Federal Food and Drug Administration official.

Dr. Arnold J. Lehman, chief of the FDA division of pharmacology, Washington, D.C., said the increasing demand for cosmetics has led to the new use of many known substances and the development and extensive manufacture of new synthetic compounds.

He made his statements in a guest editorial in a recent (May 25) Journal of the American Medical Association.

Unfortunately, carefully controlled research into the fundamental principles of skin properties and mechanisms and the actions of various chemicals and drugs on the skin has "not kept pace" with the many new products and the claims made on their behalf, he said.

Certain unobjectionable claims have been advanced for the effectiveness of certain preparations for reducing skin dryness and hiding skin blemishes and wrinkles.

However, in recent years the trend has been to advertise such products as being more than just cosmetics—that they serve as "skin foods, rejuvenators or tonics," "contour creams" for bust development or bust reducing, wrinkle eradicators, and "deep pore" cleansers.

"To date, however, no conclusive evidence has been offered in support of many of these claims," he said. "For example, there is nothing known to science that will restore color to hair or cure early male baldness."

STUDY SHOWS "PATCHWORK" OF CHEMICAL LAWS

A recent American Medical Association study showed a "patchwork" of state and federal laws regarding the labeling of hazardous chemicals, and pointed up the need for a uniform law.

Bernard E. Conley, Ph.D., secretary of the A.M.A.'s committee on toxicology, said his committee and the A.M.A. law department conducted the study in preparation for drafting a model chemical labeling law. A fall conference of interested parties in government, industry and medicine is planned to draft the model law, which will then be submitted to legislative bodies.

The proposed legislation is intended to reduce careless and ignorant handling of potentially harmful products in and around the home, in small businesses and in other areas where control of over-exposure to chemicals is not as efficient as in the manufacturing process, Conley said.

The law will require informative labeling, including listing of possibly harmful ingredients, their potentialities for harm, directions for safe use, and first-aid instructions.

At present all the states require labeling of narcotics; 93 per cent of drugs, and 85 per cent of pesticides. However, only 52 per cent require labeling of caustics and 10 per cent of industrial chemicals. Only New York, Indiana, Kansas and Connecticut regulate hazardous substances in household products.

At the national level, there are several chemical laws, including the Food, Drug and Cosmetic Act of 1938; the Insecticide, Fungicide and Rodenticide Act of 1947, and the Federal Caustic Poisons Act of 1927. In addition, the Interstate Commerce Commission and the Post Office Department have regulations regarding labeling, uses and transportation of chemicals.

The hodge-podge of laws is confusing and leads to ommission of many necessary regulations, Conley said. For instance, only 10 of 25 state caustic acid laws are similar to the Federal Caustic Poisons Act. The federal act itself is limited to only 12 caustic and corrosive acids and alkalies in specified concentrations, of which some are known to be hazardous in lower concentrations. In addition, many dangerous acids and alkalies are not even included in the law.

Of 46 states with drug laws, only 19 conform to the Federal Food, Drug and Cosmetic Act of 1938, even though 40 per cent of all drugs sold are confined to intrastate commerce, Conley said.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

The Woman's Auxiliary to the Orleans Parish Medical Society entertained the members and their guests at a gala Christmas party on Wednesday, December 11th, at 2:30 in the afternoon, at the Orleans Club on upper St. Charles Avenue.

The president, Mrs. Eugene H. Countiss, presided at a short business meeting preceding the program tea.

Mrs. Charles Farris, Jr., program chairman, introduced Mr. James W. Barr, Director of the Better Business Bureau of New Orleans, who was the guest speaker. His topic was "How To Save Your Christmas Shopping Dollar".

The members joined in group singing of Christmas carols with Mrs. Daniel W. Beacham accompanist at the piano.

Receiving in the drawing room with Mrs. Countiss were Mesdames Monte Meyer, Frank S. Oser, Jr., Nicholas Chetta, Fred O. Brumfield, Daniel W. Beacham, L. Sidney Charbonnet, Jr., and Robert C. Kelleher.

The tea table, centered with a beautiful arrangement of poinsettias and yuletide greens, was presided over by Mrs. Branch J. Aymond and Mrs. Carl N. Wahl.

The pretty and charming young daughters of the members served as tea girls: Patricia Ann Habeeb, Peggy Pavy, Diane Neal, Diane Alldredge, Sue Pavy, Shannon Brumfield, Barbara Beacham, Karen Oser, Ann Bradley, Kris Oser and Margaret Beacham.

Mrs. Branch J. Aymond,
Publicity Chairman.

BOOK REVIEWS

The Menninger Story, by Walker Winslow. Garden City, New York, Doubleday & Company, Inc., 1956, pp 350, Price $5.00.

This is the story of the growth and materialization of an idea, an idea which came to a physician in a small community. Dr. Charles Frederick Menninger, father of Drs. Karl and Will Menninger, so well known today, himself a diagnostician of note visited the Mayo Clinic in 1908, and was inspired by the idea of bringing medical care to his own community such as that offered in Rochester. Through the years and with the help of his two physician sons, this dream evolved and materialized to become one of the world's best known centers for the study of psychiatry and the care of mental patients. The history of this Clinic is the story of the Menningers themselves. It is an authoritative and absorbing account of a remarkable family and institution.

MARY LOUISE MARSHALL

Studies in Topectomy; by Nolan D. C. Lewis, Carney Landis and H. E. King (eds), New York Grune & Stratton, 1956, pp. 248, $6.75.

This is the third report in a series describing the results of the psychosurgical operation known as topectomy. As in the two preceding reports ("Selective Partial Ablation of the Frontal Cortex" and "Psychosurgical Problems"), the approach is a multidisciplinary one, including the services of cooperating teams of neurosurgeons, psychiatrists, psychologists, physiologists, social workers, etc. There were 66 brain operated patients studied, and 29 comparable, unoperated patients served as controls. The separate chapters in the Monographs describe the effects of either the *orbital* or *superior* topectomy upon the patient group. These chapters include the surgical procedure, physiological effects, vestibular function, autokinesis, psychometric studies, complex mental functions, time sampling study of activity, psychophysiology, sexual behavior, psychiatric effects, independent psychiatric evaluation and social service. In addition to providing information extending the earlier findings made by the Columbia-Greystone group, the present study introduces two new techniques of evaluation: a study of activity by time sampling methods, previously successfully employed in a study of primate behavior but never with man; and the study of the sexual behavior of the patients by the methods worked out by Professor Kinsey and his associates.

The unique importance of a situation permitting the study of human patients *before* as well as after cortical damage lends this study, like its predecessors, great value in our efforts to understand the mechanisms of the operation of the human brain. There is much of value for the reader of each of the disciplines comprising this investigative undertaking, as well as those whose interest lies in brain surgery.

KATHLEEN M. YOUNG, PH.D.

PUBLICATIONS RECEIVED

Grune & Stratton, Inc., N. Y.: The Physiologic Basis of Gastrointestinal Therapy, by Heinrich Necheles, M. D., and Martin M. Kirshen, M. D.; Bone Diseases in Medical Practice, by I. Snapper, M. D.

Louisiana State University Press, Baton Rouge: Nuclear Energy in the South, edited by Redding Sugg, Jr.

The C. V. Mosby Co., St. Louis: Symposium on Diseases and Surgery of the Lens, by George M. Haik, M. D., Elizabeth M. McFetridge, M. A., and Don Alvarado, Art Editor.

Charles C Thomas, Publisher, Springfield, Ill.: Liver-Brain Relationships, by Ian A. Brown, M. D.

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Source—Race, G. A.; Scheifley, C. H., and Edwards, J. E.: Circulation *13*:329, 1956.

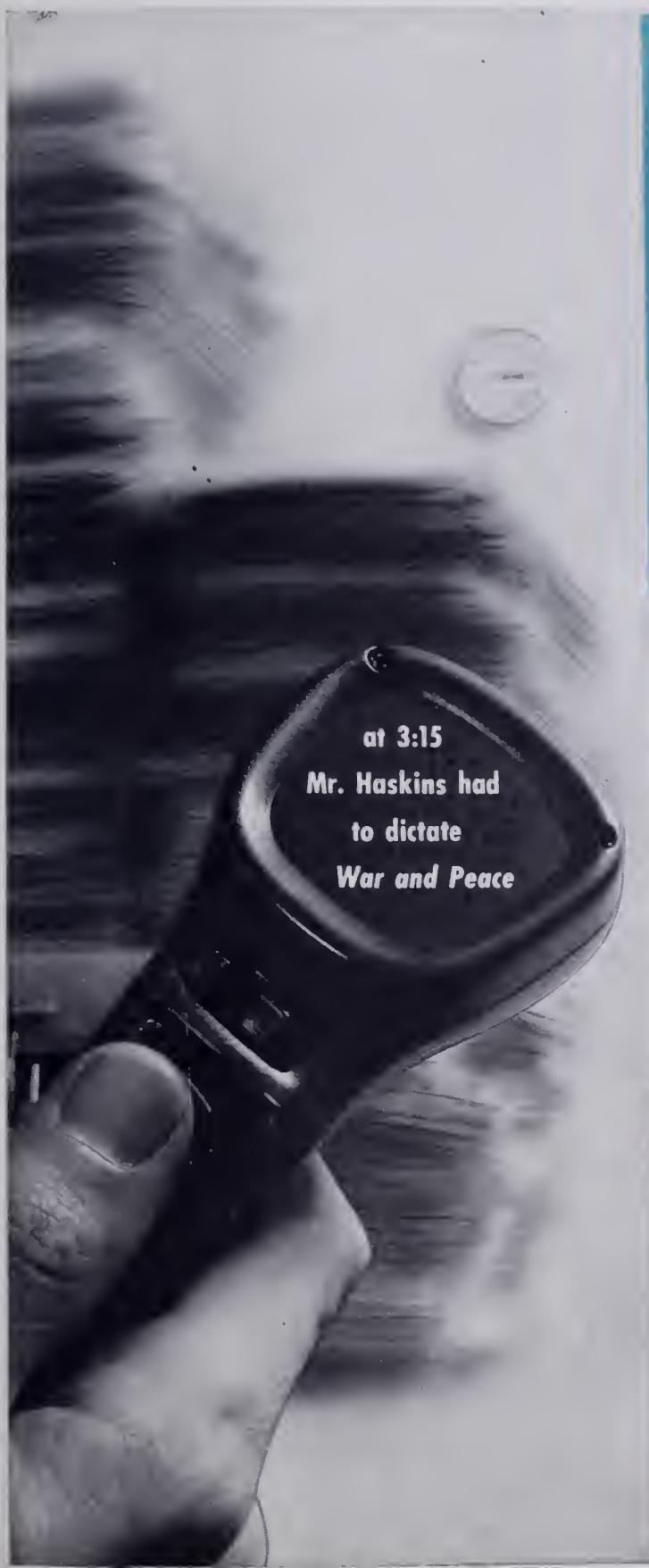
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1. Comparative Effects of Various Rauwolfia Alkaloids in Hypertension; *submitted for publication.*



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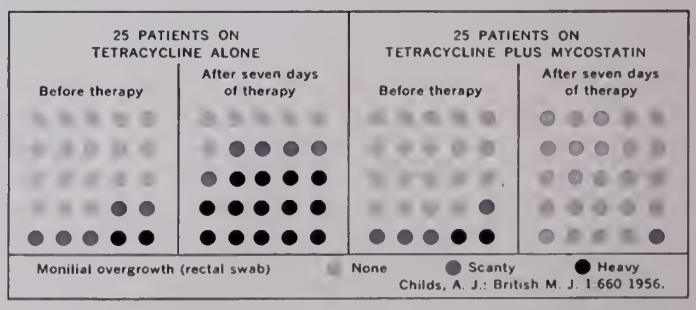
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Childs, A. J.: British M. J. 1:660 1956.

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'DIURIL', added to the regimen is often effective in controlling the blood pressure of even highly resistant cases of hypertension

For smooth, sustained antihypertensive effect, the majority of hypertensive patients can be controlled better when 'DIURIL' is combined with significantly reduced amounts of antihypertensive agents

Recommended dosage range: in hypertension—one 250 mg. tablet 'DIURIL' b.i.d. to one 500 mg. tablet 'DIURIL' t.i.d.

Supplied: 250 mg. and 500 mg. scored tablets 'DIURIL' (chlorothiazide), bottles of 100 and 1000.

References

1. Hollander, William, and Wilkins, Robert W.: Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension, Boston Medical Quarterly *8*:69 (Sept.) 1957.

2. Freis, Edward D., and Wilson, Ilse M.: Potentiating Effect of Chlorothiazide (DIURIL) in Combination with Antihypertensive Agents, a Preliminary Report; Med. Annals of the District of Columbia *26*:468 (Sept.) 1957.

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'DIURIL'

CHLOROTHIAZIDE

a major breakthrough in the management of two major medical problems

MSD

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Edema of Pregnancy

Cirrhosis





Cardiac Edema

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Obesity with Fluid Retention

RECOMMENDED DOSAGE RANGE: in edema—one 500 mg. tablet 'DIURIL' to two 500 mg. tablets 'DIURIL' once or twice a day.

SUPPLIED: 250 mg. and 500 mg. scored tablets of 'DIURIL' (chlorothiazide), bottles of 100 and 1000.

'DIURIL'

Merck Sharp & Dohme Philadelphia 1, Pa
Division of Merck & Co., Inc.

REFERENCES:

1. Moyer, J.H., Ford, R.V., and Spurr, C.L.: Pharmacodynamics of Chlorothiazide (Diuril), An Orally Effective Non-Mercurial Diuretic Agent, Proc. Soc. Exper. Biol. and Med. *95*:529 (July) 1957.

2. Ford, Ralph V., Handley, Carroll, Moyer, John H., and Spurr, Charles L.: Chlorothiazide, An Orally Effective Non-Mercurial Diuretic Agent, Med. Rec. and Ann. *51*:376 (April) 1957.

DIURIL is a trade-mark of Merck & Co., INC.

what are the differences among tranquilizers ?

Reviews of ataraxic therapy commonly divide the available tranquilizers into three main categories: the rauwolfia derivatives; the phenothiazine compounds; and a smaller group of agents which are lumped together for the sake of convenience rather than because of any common characteristic.

As a result, one significant fact is often overlooked: ATARAX (hydroxyzine) does not fit into any of these three categories. Indeed, by any logical criterion, it belongs in a class by itself.

1. ATARAX is chemically unique. It differs from any other tranquilizer now available, not in minor molecular rearrangements but in basic structure.

2. ATARAX is therapeutically different. ATARAX is characterized by unique cerebral specificity. On ATARAX, the patient retains full consciousness of incoming stimuli —their nature and their intensity—but his reactions are those of a well-adjusted person. He is neither depressed nor torpid, and his reflexes remain normal, as does cortical function. Thus ATARAX induces a calming peace-of-mind effect without disturbing mental alertness.

3. ATARAX is, perhaps, the safest ataraxic known. It is outstandingly well tolerated. Every clinical report confirms this fact.* After more than 150 million doses, there has not been a single report of toxicity, blood dyscrasia, parkinsonian effect, liver damage, or habituation.

4. ATARAX is unusually flexible. This lack of toxicity makes it possible to adjust ATARAX dosage to virtually any patient need. In the lowest range, children respond well to 10 mg. or one teaspoonful of syrup t.i.d., while anxious adults usually are treated with 25 mg. q.i.d. Yet, if needed, the dosage can safely be raised: in more severe disturbances, dosages up to 1,000 mg. daily have been administered without adverse reactions.

In reviewing your own experience with tranquilizers, remember that ATARAX is in a class by itself; that you cannot judge it by your results with any other drug. To get to know ATARAX at first hand, prescribe it for the next four weeks whenever a tranquilizer is indicated. See for yourself how it compares.

*Documentation on request

PEACE OF MIND ATARAX®
(BRAND OF HYDROXYZINE)

ATARAX
in any hyperemotive state

for childhood behavior disorders
10 mg. tablets—3-6 years, one tablet t.i.d.; over 6 years, two tablets t.i.d. Syrup—3-6 years, one tsp. t.i.d.; over 6 years, two tsp. t.i.d.

for adult tension and anxiety
25 mg. tablets—one tablet q.i.d. Syrup—one tbsp. q.i.d.

for severe emotional disturbances
100 mg. tablets—one tablet t.i.d.

for adult psychiatric and emotional emergencies
Parenteral Solution—25-50 mg. (1-2 cc.) intramuscularly, 3-4 times daily, at 4-hour intervals. Dosage for children under 12 not established.

Supplied: Tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.

M. A. Seidel M.D.
Medical Director

Rx Roerig
New York 17, New York
Division, Chas. Pfizer & Co., Inc.

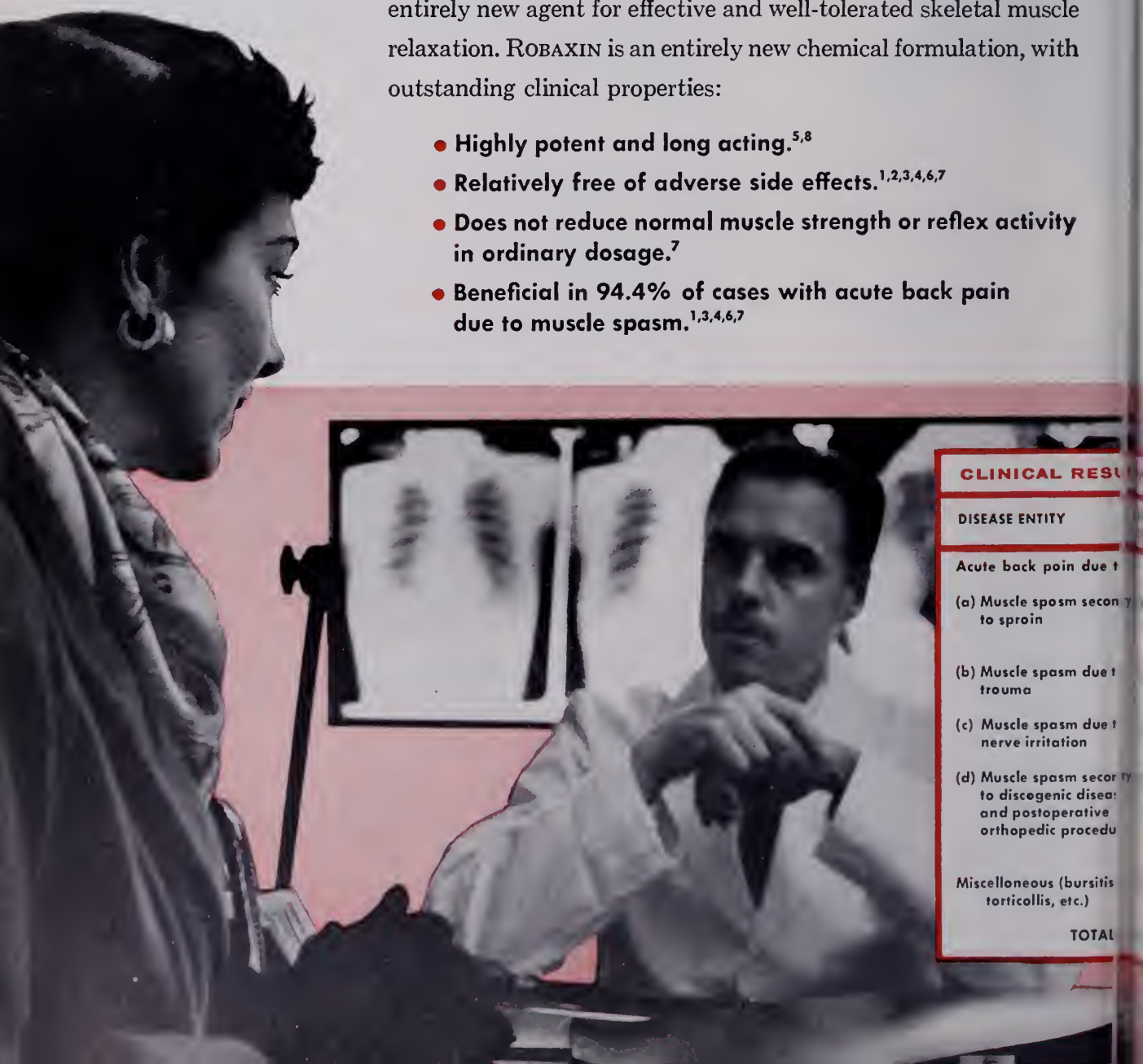
Significant Robins research discovery:

A NEW SKELETAL MUSCLE RELAXANT

Ro

ROBAXIN – synthesized in the Robins Research Laboratories, and intensively studied for five years – introduces to the physician an entirely new agent for effective and well-tolerated skeletal muscle relaxation. ROBAXIN is an entirely new chemical formulation, with outstanding clinical properties:

- **Highly potent and long acting.**[5,8]
- **Relatively free of adverse side effects.**[1,2,3,4,6,7]
- **Does not reduce normal muscle strength or reflex activity in ordinary dosage.**[7]
- **Beneficial in 94.4% of cases with acute back pain due to muscle spasm.**[1,3,4,6,7]



CLINICAL RESU

DISEASE ENTITY
Acute back poin due t
(a) Muscle sposm secon y to sproin
(b) Muscle spasm due t trouma
(c) Muscle spasm due t nerve irritation
(d) Muscle spasm secor ry to discogenic disea and postoperative orthopedic procedu
Miscelloneous (bursitis torticollis, etc.)
TOTAL



baxin®

(Methocarbamol Robins, U.S. Pat. No. 2770649)

Highly specific action

ROBAXIN is highly specific in its action on the internuncial neurons of the spinal cord – with inherently sustained repression of multisynaptic reflexes, but with no demonstrable effect on monosynaptic reflexes. It thus is useful in the control of skeletal muscle spasm, tremor and other manifestations of hyperactivity, as well as the pain incident to spasm, without impairing strength or normal neuromuscular function.

Beneficial in 94.4% of cases tested

When tested in 72 patients with acute back pain involving muscle spasm, ROBAXIN induced marked relief in 59, moderate relief in 6, and slight relief in 3 – or an over-all beneficial effect in 94.4%.[1,3,4,6,7] No side effects occurred in 64 of the patients, and only slight side effects in 8. In studies of 129 patients, moderate or negligible side effects occurred in only 6.2%.[1,2,3,4,6,7]

ITH ROBAXIN IN ACUTE BACK PAIN[1,3,4,6,7]

OF GES	DURATION OF TREATMENT	DOSE PER DAY (divided)	RESPONSE marked	mod.	slight	neg.	SIDE EFFECTS
	2-42 days	3-6 Gm.	17	1	0	0	None, 16 Dizziness, 1 Slight nouseo, 1
	1-42 doys	2-6 Gm.	8	1	3	1	None, 12 Nervousness, 1
	4-240 days	2.25-6 Gm.	4	1	0	0	None, 5
	2-28 days	1.5-9 Gm.	24	3	0	3	None, 25 Dizziness, 1 Lightheaded-ness, 2 Nausea, 2 *
	3-60 doys	4-8 Gm.	6	0	0	0	None, 6
			59	6	3	4	*Relieved on reduction of dose

References: **1.** Carpenter, E. B.: Publication pending. **2.** Carter, C. H.: Personal communication. **3.** Forsyth, H. F.: Publication pending. **4.** Freund, J.: Personal communication. **5.** Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: American Pharm. Assn. 46:374, 1957. **6.** Nachman, H. M.: Personal communication.

Indications – Acute back pain associated with: (a) muscle spasm secondary to sprain; (b) muscle spasm due to trauma; (c) muscle spasm due to nerve irritation; (d) muscle spasm secondary to discogenic disease and postoperative orthopedic procedures; and miscellaneous conditions, such as bursitis, fibrositis, torticollis, etc.

Dosage – Adults: Two tablets 4 times daily to 3 tablets every 4 hours. Total daily dosage: 4 to 9 Gm. in divided doses.

Precautions – There are no specific contraindications to Robaxin and untoward reactions are not to be anticipated. Minor side effects such as lightheadedness, dizziness, nausea may occur rarely in patients with unusual sensitivity to drugs, but disappear on reduction of dosage. When therapy is prolonged routine white blood cell counts should be made since some decrease was noted in 3 patients out of a group of 72 who had received the drug for periods of 30 days or longer.

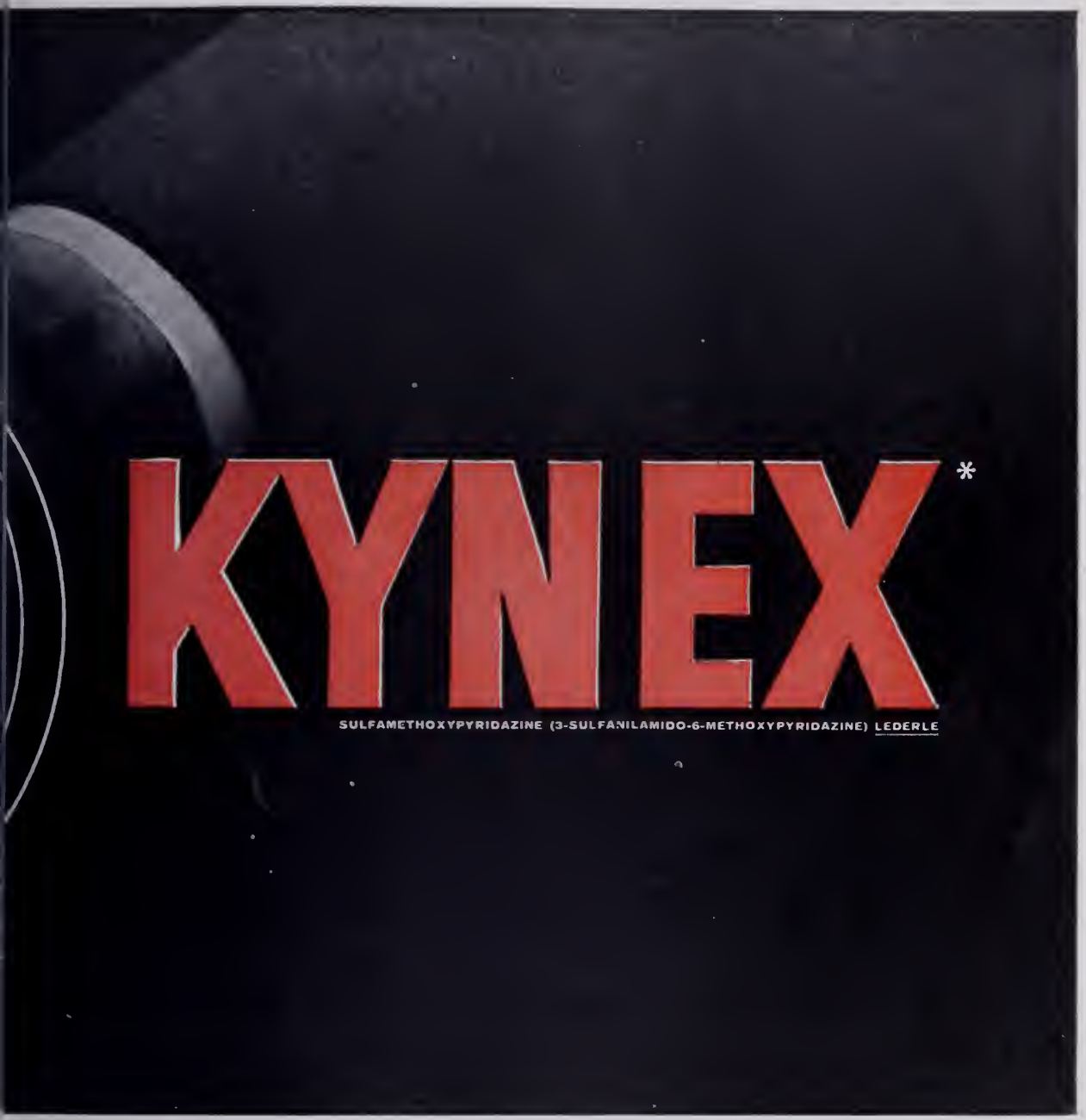
Supply – Robaxin Tablets, 0.5 Gm., in bottles of 50.



New authoritative studies show that KYNEX dosage can be reduced even further than that recommended earlier.[1] Now, clinical evidence has established that a single (0.5 Gm.) tablet maintains therapeutic blood levels extending beyond 24 hours. Still more proof that KYNEX stands alone in sulfa performance—

- Lowest Oral Dose In Sulfa History—0.5 Gm. (1 tablet) daily in the usual patient for maintenance of therapeutic blood levels
- Higher Solubility—effective blood concentrations within an hour or two
- Effective Antibacterial Range—exceptional effectiveness in urinary tract infections
- Convenience—the low dose of 0.5 Gm. (1 tablet) per day offers optimum convenience and acceptance to patients

1. Nichols, R. L. and Finland, M. *J. Clin. Med.* 49:410, 1957.



NEW DOSAGE. The recommended adult dose is 1 Gm. (2 tablets or 4 teaspoonfuls of syrup) the first day, followed by 0.5 Gm. (1 tablet or 2 teaspoonfuls of syrup) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours. Dosage in children, according to weight; i.e., a 40 lb. child should receive ¼ of the adult dosage. It is recommended that these dosages not be exceeded.

TABLETS: Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

SYRUP: Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

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...and may we remind you that a glass of beer can make high protein diets more palatable?

Meat, of course, is an outstanding source of protein, but it can easily be reinforced with other protein foods. For instance, a fluffy omelet folded over penny-sliced frankfurters, ground cooked meat, flaked fish or cheese is both tempting and economical.

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*Protein 0.8 Gm.; Calories 104/8 oz. glass (Average of American Beers)

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respiratory congestion orally

relief in minutes..lasts for hours

In the common cold, nasal allergies, sinusitis, and postnasal drip, one timed-release Triaminic tablet brings welcome relief of symptoms *in minutes*. Running noses stop, clogged noses open—and *stay* open for 6 to 8 hours. The patient can breathe again.

With *topical* decongestants, "unfortunately, the period of decongestion is often followed by a phase of secondary reaction during which the congestion may be equal to, if not greater than, the original condition. . . ."* The patient then must reapply the medication and the vicious cycle is repeated, resulting in local overtreatment, pathological changes in nasal mucosa, and frequently "nose drop addiction."

Triaminic does not cause secondary congestion, eliminates local overtreatment and consequent nasal pathology.

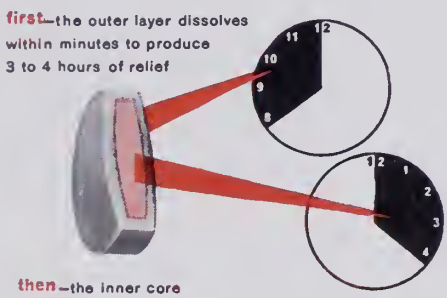
*Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

Each double-dose "timed-release" TRIAMINIC *Tablet contains:*

Phenylpropanolamine hydrochloride	50 mg.
Pyrilamine maleate	25 mg.
Pheniramine maleate	25 mg.

Dosage: 1 tablet in the morning, afternoon, and in the evening if needed.

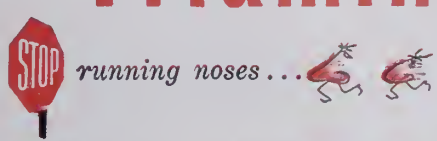
Each double-dose "timed-release" tablet keeps nasal passages clear for 6 to 8 hours—provides "around-the-clock" freedom from congestion on just three tablets a day



Also available: Triaminic Syrup, for children and those adults who prefer a liquid medication.

Triaminic®

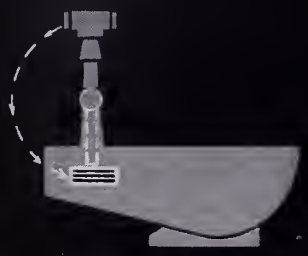
"timed-release" tablets



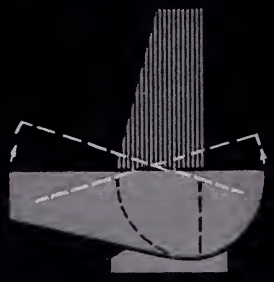
running noses . . . and open stuffed noses orally

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72	72	72	37	37	37	37	37	37	37	30	30	37	37	37	37	37	37	37	37		

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gr. ½



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...from moderate to severe pain complicated by tension, anxiety and restlessness.

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...from pain of muscle and joint origin, simple headache, neuralgia, and the symptoms of the common cold.

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Meat...

and the Protein Need in Renal Disease

Prevailing opinion holds that during the nephrotic state—provided the kidneys are capable of excreting nitrogen in a normal manner—the patient should be given a diet high in protein (1.5 to 2 grams per kilogram of body weight daily). The purpose of such a diet is to replace depleted plasma protein and to increase the colloidal osmotic pressure of the blood.

Sharp restriction of dietary salt appears indicated only in the presence of edema, but moderate restriction is usually recommended.

Lean meat is admirably suited for the diets prescribed in most forms of renal disease. It supplies relatively large amounts of high quality protein and only small amounts of sodium and chloride. Each 100 Gm. of unsalted cooked lean meat (except brined or smoked types) provides approximately 30 Gm. of protein, and only about 100 mg. of sodium and 75 mg. of chloride.

In addition to its nutritional contributions meat fulfills another advantageous purpose: It helps make meals attractive and tasty for the patient who must rigidly adhere to a restricted dietary regimen.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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Hycodan®

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- Relieves cough quickly and thoroughly
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Syrup and oral tablets. Each teaspoonful or tablet of HYCODAN* contains 5 mg. dihydrocodeinone bitartrate and 1.5 mg. Mesopin.† Average adult dose: One teaspoonful or tablet after meals and at bedtime. May be habit-forming. Available on your prescription.

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The greatest benefit in acne therapy comes to those patients who use pHisoHex® often and daily in conjunction with other standard measures.

For best results, prescribe from four to six pHisoHex washings of the acne area daily.

pHisoHex cleans better than soap, degerms rapidly, prevents bacterial growth, and maintains normal skin pH.

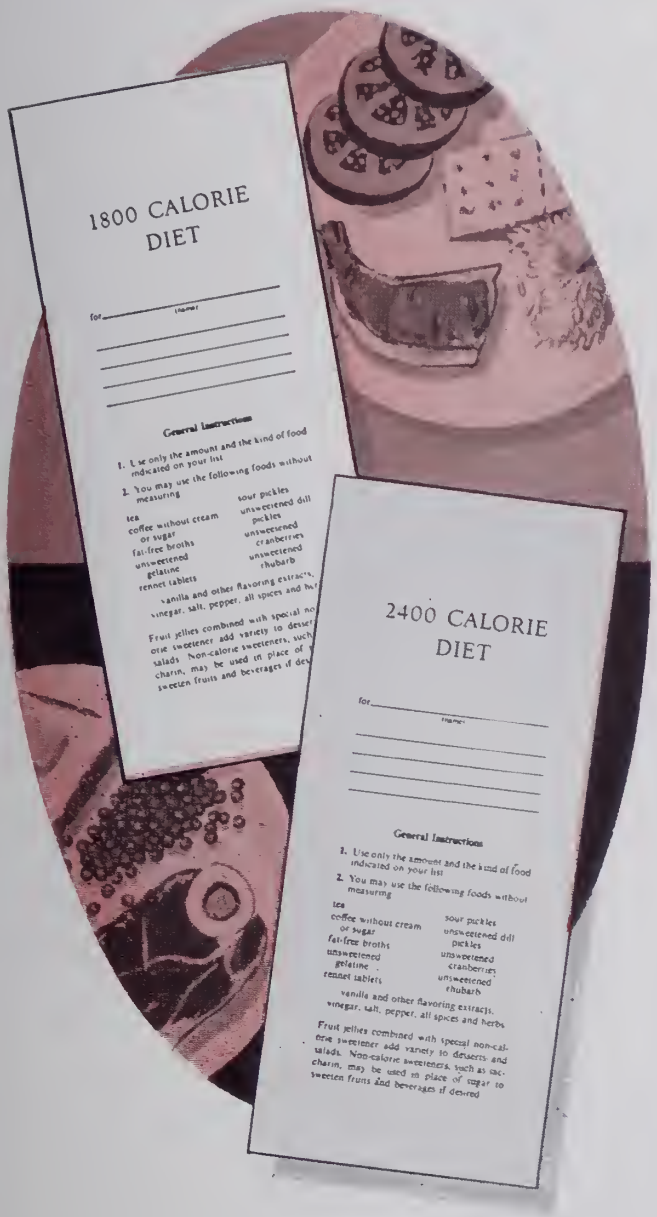
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Sudsing, nonalkaline antibacterial detergent—nonirritating, hypoallergenic. Contains 3% hexachlorophene.

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Upon your request, The Armour Laboratories will be pleased to send you a complimentary supply of 1800 and 2400 calorie diets . . . low in carbohydrate and high in unsaturated fats . . . intended for use in conjunction with ARCOFAC, the Armour preparation designed to lower elevated blood cholesterol.

Arcofac need be taken only once a day . . . in relatively small amounts . . . and allows the patient to eat a balanced, nutritious and palatable diet.

Each tablespoonful of ARCOFAC emulsion contains:

Linoleic acid*. . . . 6.8 Gm.
Vitamin B_6 . . . . . 0.6 mg.
Mixed tocopherols (Vitamin E) . . . . 11.5 mg.

*derived from safflower oil which contains the highest concentration of unsaturated fatty acids of any commercially available vegetable oil.

Arcofac is available in bottles of 12 fluid ounces.

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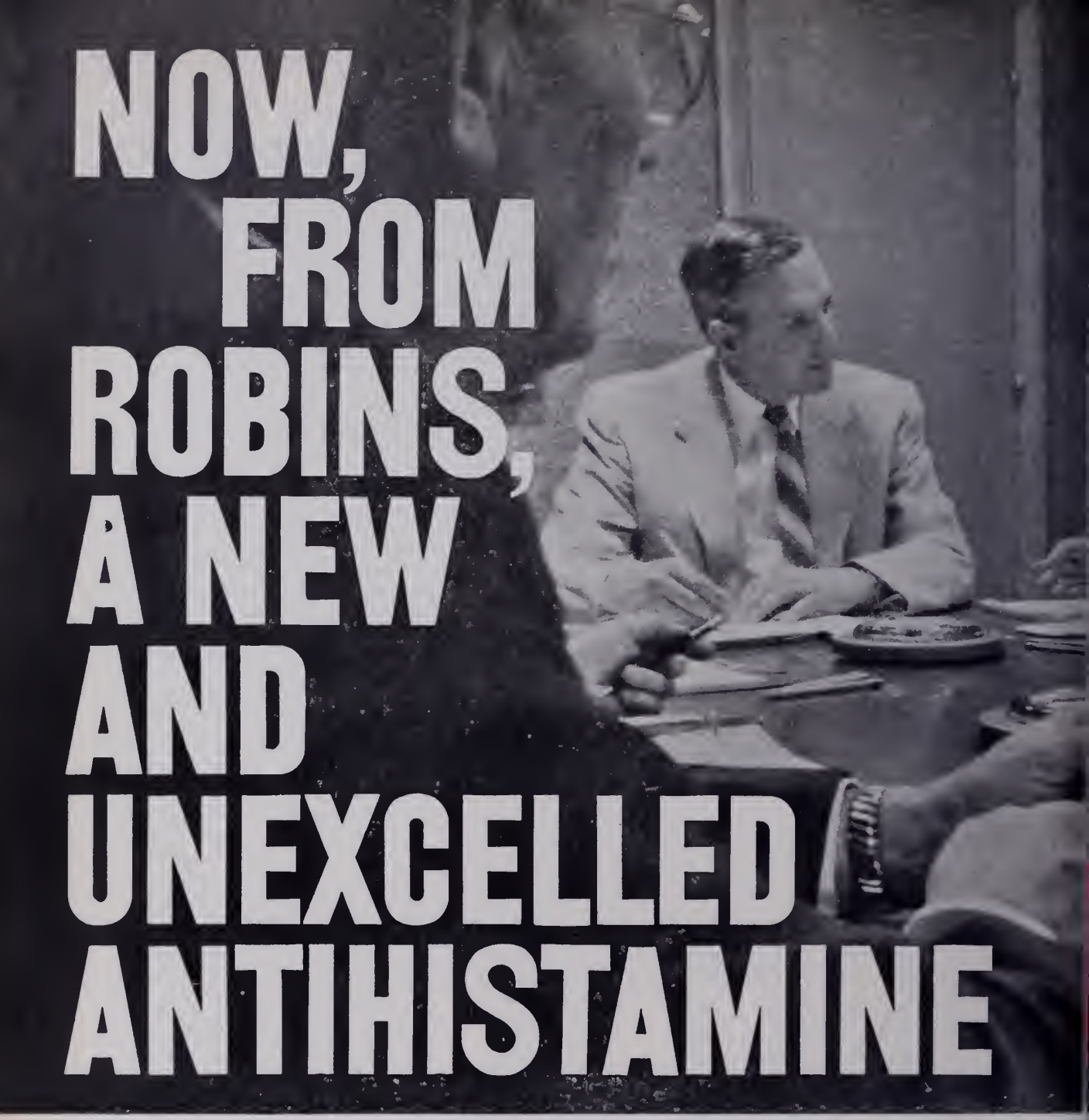
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why Dimetane is the best reason yet for you to re-examine the antihistamine you're now using »*Milligram for milligram*

DIMETANE potency is unexcelled. DIMETANE has a therapeutic index unrivaled by an other antihistamine–a relative safety unexceeded by any other antihistamine. DIMETANE, even in very low dosage, has been effective when other antihistamines have failed. Drowsiness, other side effects have been at the very minimum.

Diagnosis	No. of Patients	Response				Side Effects
		Excellent	Good	Fair	Negative	
Allergic rhinitis and vasomotor rhinitis	30	14	9	5	2	Slight Drowsiness (1
Urticaria and angioneurotic edema	3	1	1	1		Dizzy (1)
Allergic dermatitis	2		1	1		Slight Drowsiness (1
Bronchial asthma	1		1			
Pruritus	1		1			
Total	37	15	13	7	2	Drowsiness (5) Dizzy (1) 16.2

» unexcelled antihistaminic action

From the preliminary **Dimetane Extentabs** studies of three investigators. Further clinical investigations will be reported as complet



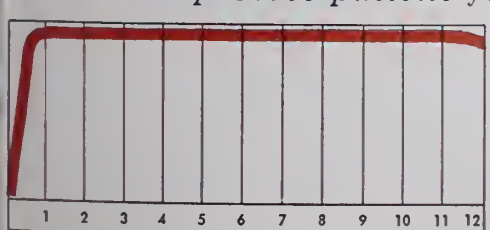
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DIMETANE IS PARABROMDYLAMINE MALEATE – EXTENTABS 12 MG., TABLETS 4 MG., ELIXIR 2 MG. PER 5 CC.

a blanket of allergic protection, covering 10-12 hours—with just one Dimetane Extentab » *DIMETANE Extentabs protect patient for 10-12 hours on one tablet.*



Periods of stress can be easily handled with supplementary DIMETANE Tablets or Elixir to obtain maximum coverage.

Dosage:

Adults—One or two 4-mg. tabs. or two to four teaspoonfuls Elixir, three or four times daily. One Extentab q.8-12 h. or twice daily.

Children over 6—One tab. or two teaspoonfuls Elixir t.i.d. or q.i.d., or one Extentab q.12h.

Children 3-6—½ tab. or one teaspoonful Elixir t.i.d.

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The Best Tasting Aspirin you can prescribe.

The Flavor Remains Stable down to the last tablet.

25¢ Bottle of 48 tablets (1¼ grs. each).

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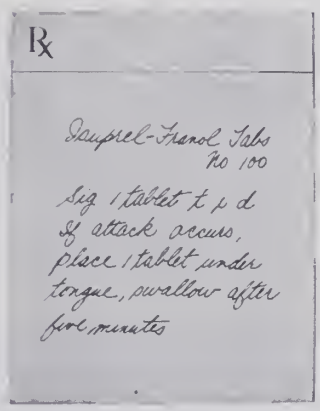
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1. Fromer, J. L., and DeRisio, V. J.: *Lahey Clin. Bull.* 10:45, Oct.-Dec., 1956.

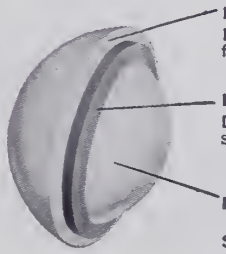


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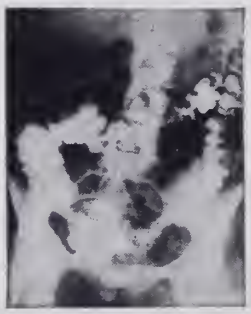
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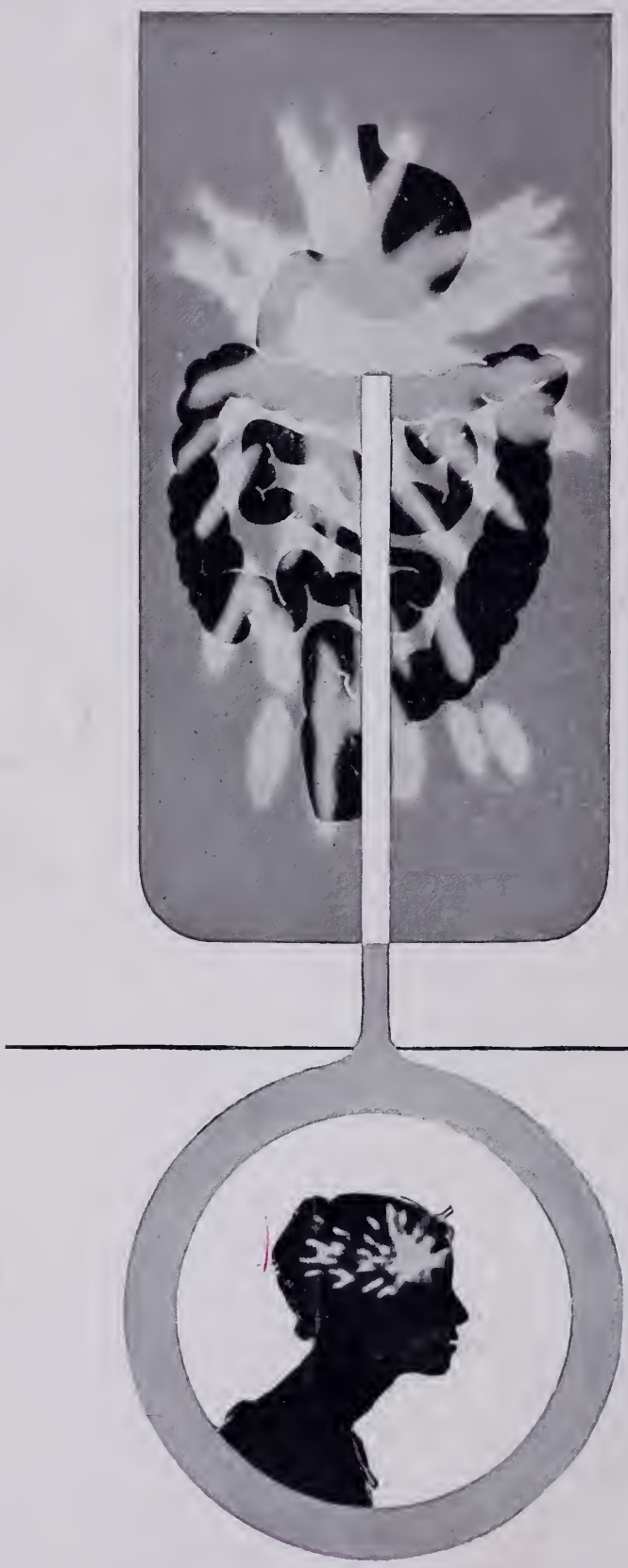
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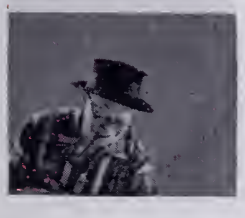
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* 1. Clyman, S. G.: Postgrad. Med. *21*:309, 1957.
2. Bleiberg, J.: J. M. Soc. New Jersey *53*:37, 1956.
3. Abrams, B. P., and Shaw, C.: Clin. Med. *3*:839, 1956.
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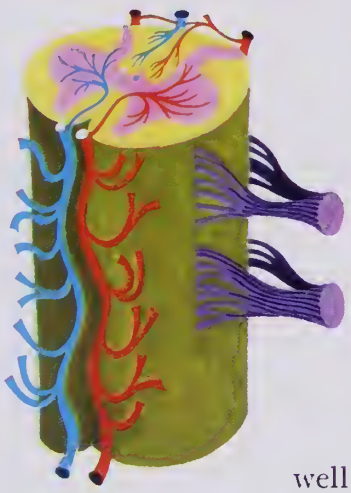
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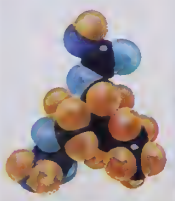
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REFERENCES (1) Woolington, S. S.; Adler, S. J., & Bower, A. G., in Welch, H., & Marti-Ibanez, F.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 365. (2) Ditmore, D. C., & Lind, H. E.: *Am. J. Gastroenterol.* 28:378, 1957. (3) Hasenclever, H. F.: *J. Iowa M. Soc.* 47:136, 1957. (4) Waisbren, B. A., & Strelitzer, C. L.: *Arch. Int. Med.* 99:744, 1957. (5) Holloway, W. J., & Scott, E. G.: *Delaware M. J.* 29:159, 1957. (6) Rhoads, P. S.: *Postgrad. Med.* 21:563, 1957. (7) Petersdorf, R. G.; Bennett, I. L., Jr., & Rose, M. C.: *Bull. Johns Hopkins Hosp.* 100:1, 1957. (8) Royer, A.: Changes in Resistance to Various Antibiotics of Staphylococci and Other Microbes, paper presented at Fifth Ann. Symp. on Antibiotics, Washington, D. C., Oct. 2-4, 1957. (9) Doniger, D. E., & Parenteau, Sr. C. M.: *J. Maine M. A.* 48:120, 1957. (10) Josephson, J. E., & Butler, R. W.: *Canad. M. A. J.* 77:567 (Sept. 15) 1957.

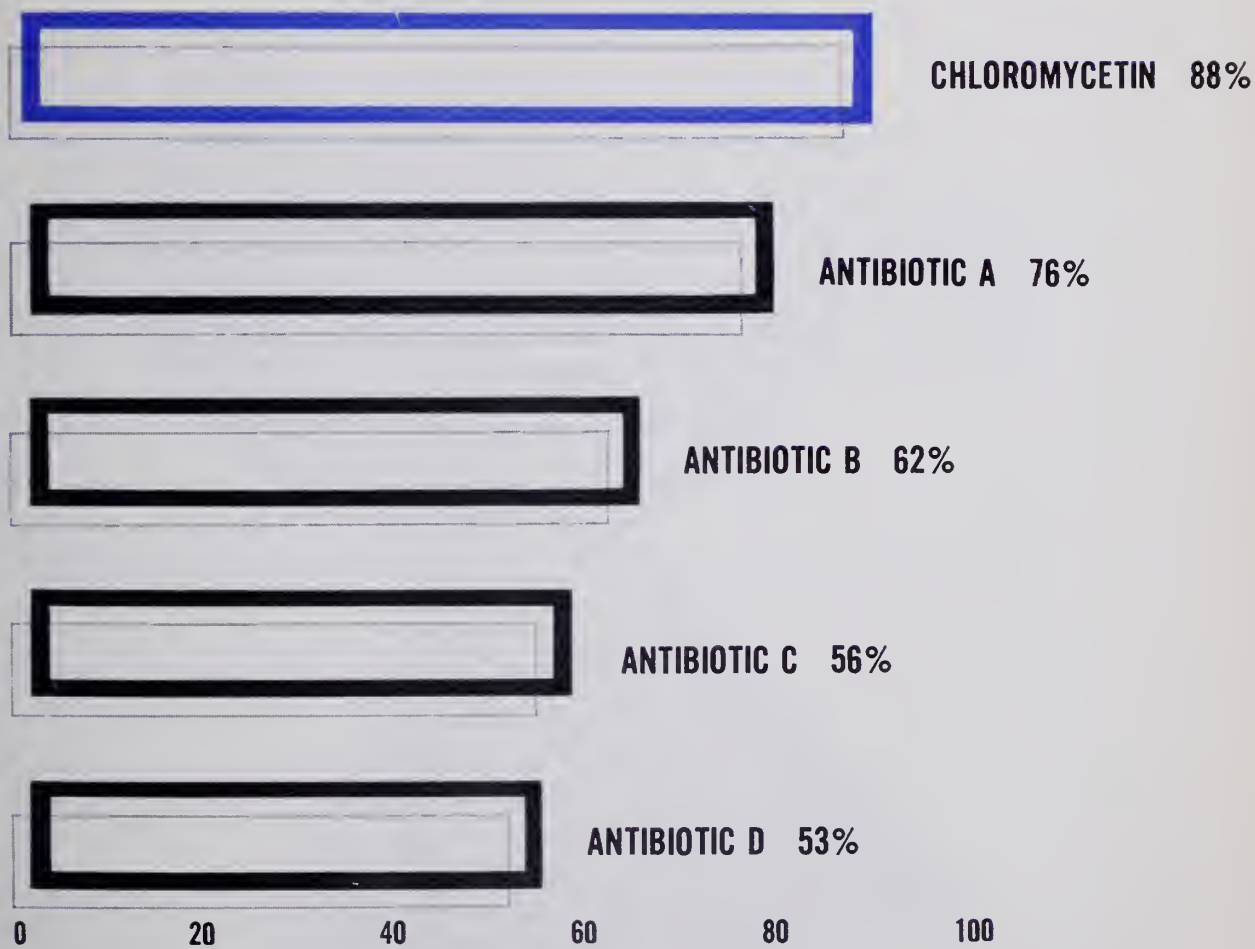
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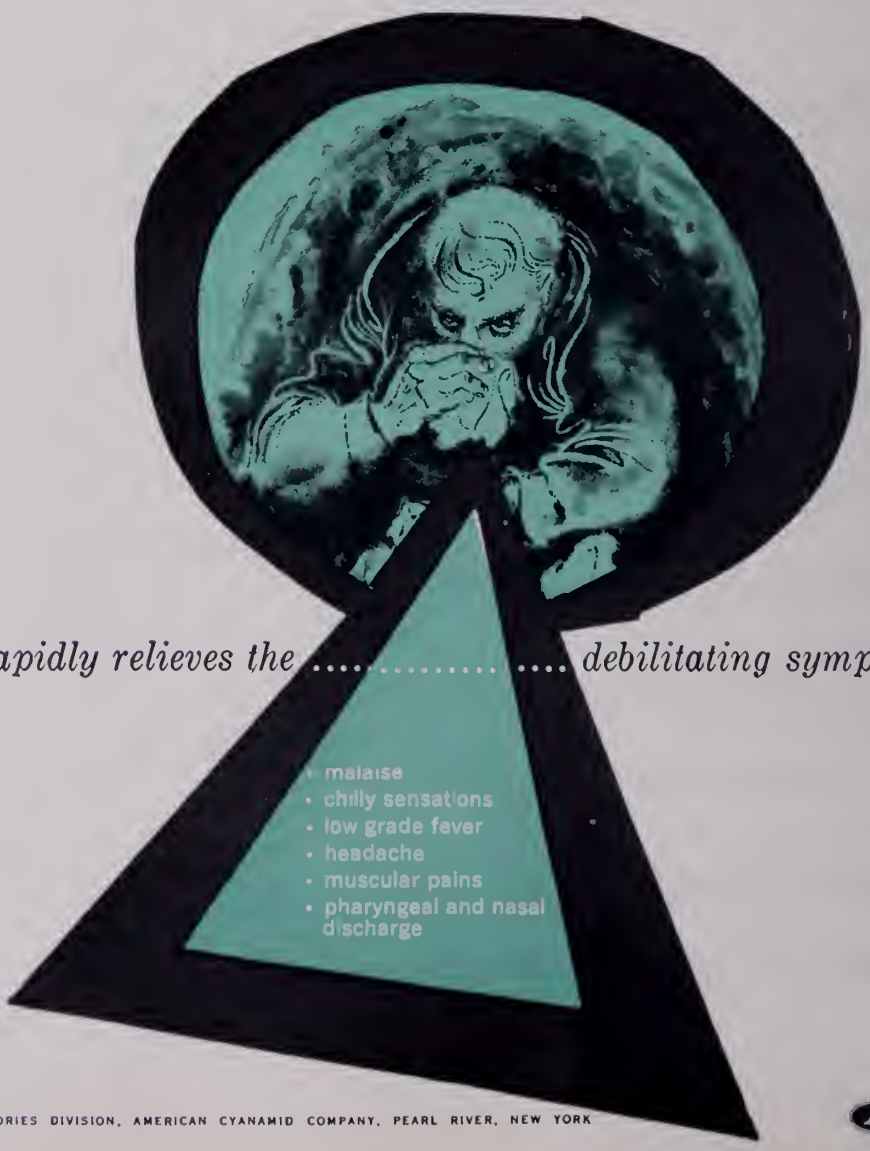
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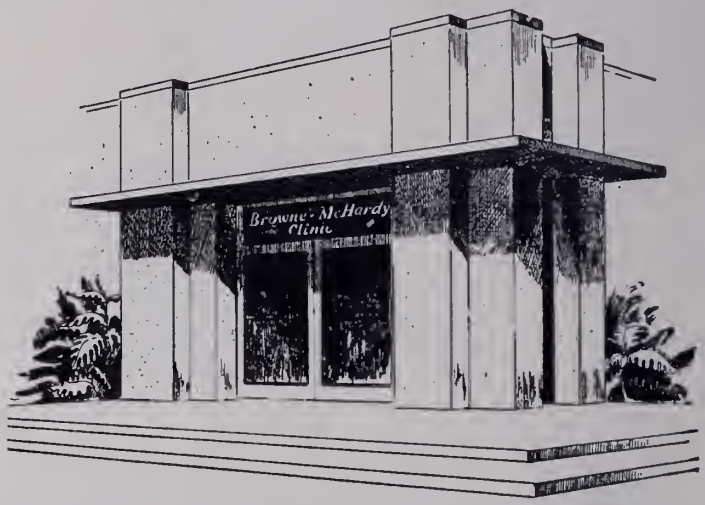
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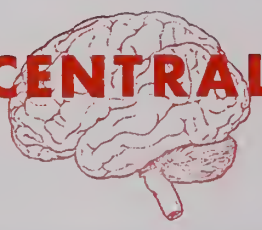


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1. Waldman, S., and Pelner, L.: Am. Pract. & Digest Treat. *8*:1075 (July) 1957.

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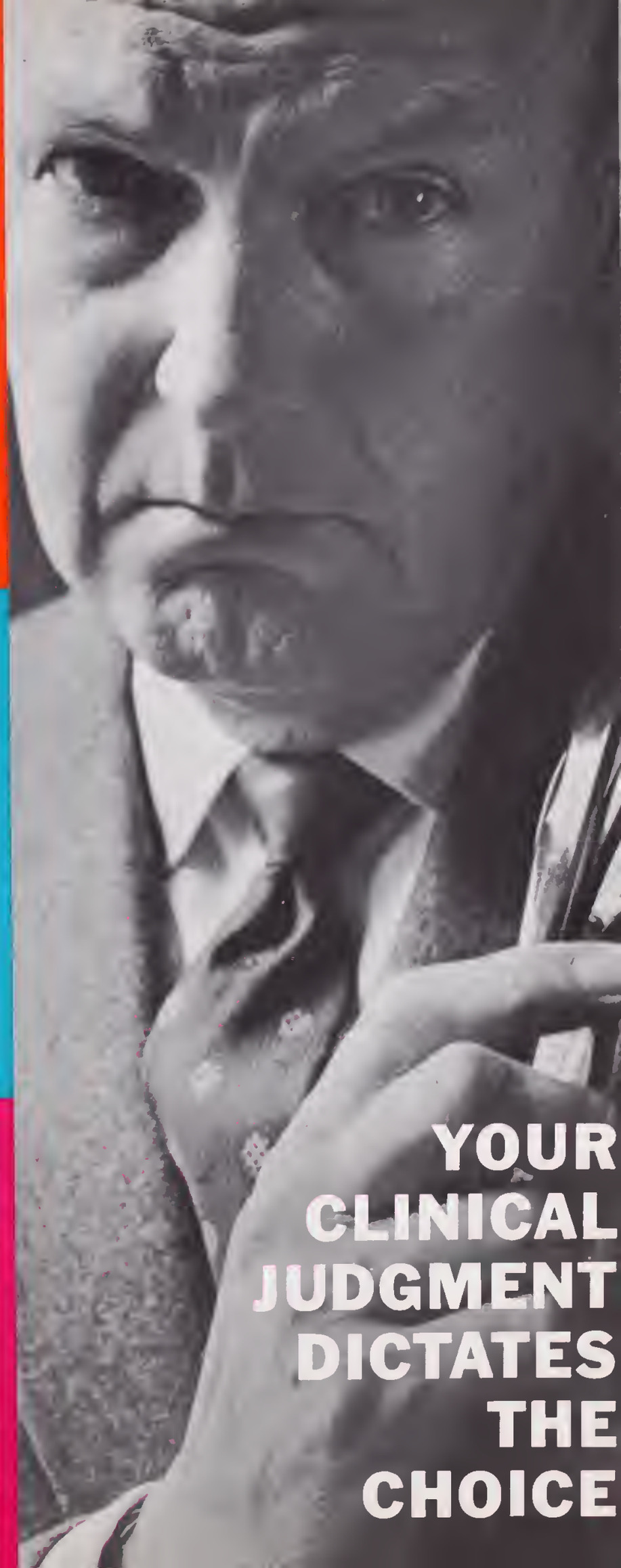
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1. Welch, H.; Wright, W. W., and Staffa, A. W.: Antibiotic Med & Clin. Therapy 4:620, 1957

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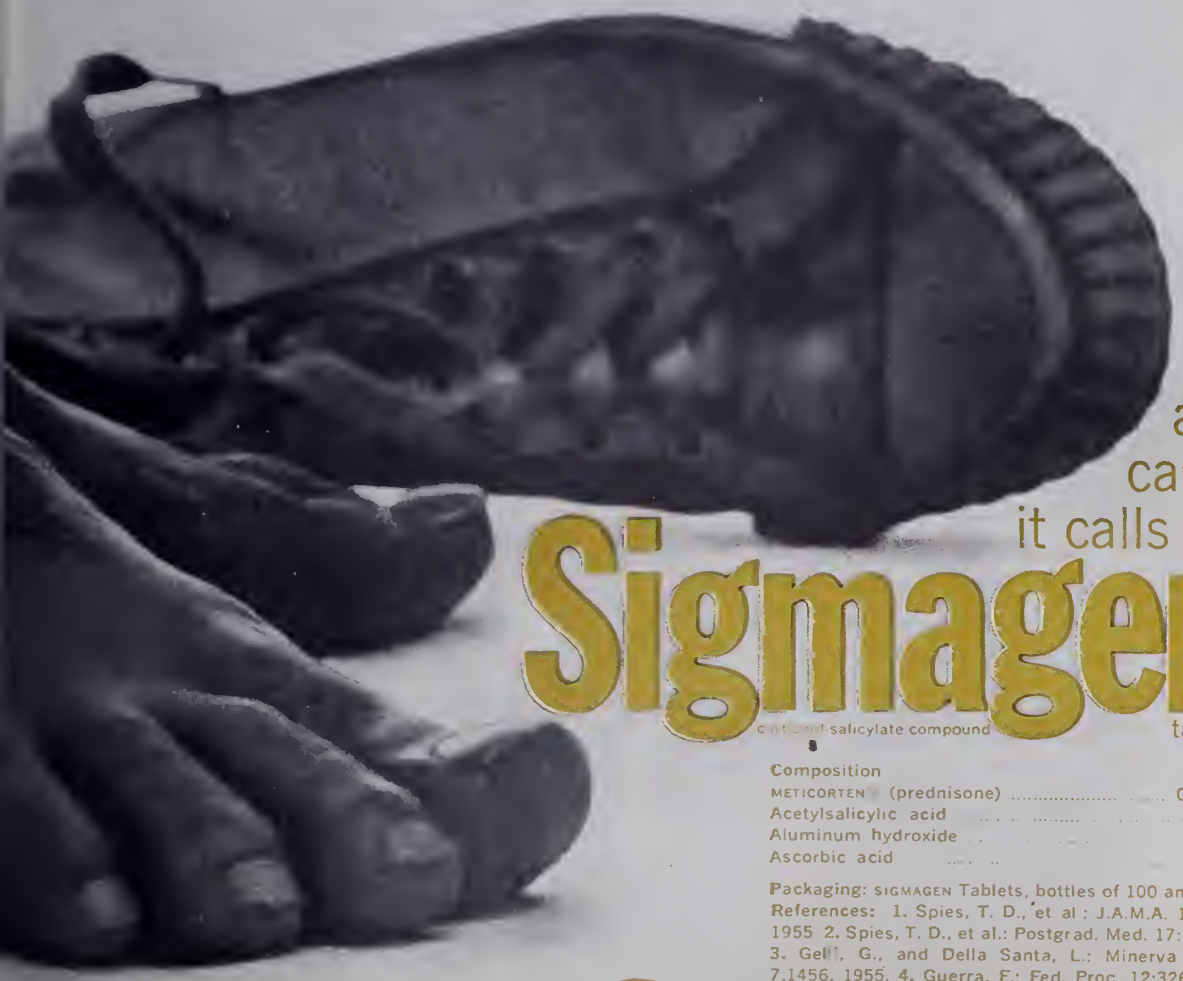
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THE PHYSICIAN AND PRIVILEGED COMMUNICATIONS *

RALPH SLOVENKO †

New Orleans

A great deal of the record of civilization can be found in the history of the professions of Law and Medicine. The professions of "Order" and "Health" are fundamental to the survival of the human race: man's oldest enemies are chaos and sickness, and it is to the maintenance of order and health in the physical and social bodies that the legal and medical professions dedicate themselves. This paper is concerned with the physician who is called to the courtroom as a witness and is asked to collaborate with the attorney as an instrumentality of justice.

The physician's oath as preserved in the work on medicine of Hippocrates, the first great Greek physician, is still administered in our own time to the graduating classes of colleges of medicine:

"And whatsoever I shall see or hear in the course of my profession as well as outside my profession in my intercourse with men, if it be what should not be published abroad, I will never divulge, holding such things to be holy secrets."

The Hippocratic oath, however, does not preclude the recognition of ends other than the maintenance of faith in the medical profession. In the interest of preserving the public health, a physician who is faced with the alternatives of disclosing the existence of a communicable disease or of keeping a confidence, will probably sacrifice the confidence. In the interest of the administration of justice, the Principles of Medical Ethics of the American Medical Association provide that confidences entrusted to a physician, as well as information concerning defects or disposition or flaws of character, shall be revealed when disclosure is required by law.[1] Our question is: what legal protection is accorded the Hippocratic oath? When may a physician keep secret in the courtroom information which he has learned in the exercise of his profession?

The general policy of the law is to obtain as many facts as possible about a controversy on trial. Unless the judge and jury have every bit of relevant evidence, the verdict will be based on a distorted presentation of the facts. Due process means fair trial, and a trial is only as good as the evidence considered by the court. Therefore, the tribunal as a rule is given the power to summon any witness and to make him answer any question put to him, unless his testimony would incriminate him of crime.[2] Every

* Presented at Meeting of the Orleans Parish Medical Society, December 9, 1957.

† Assistant Professor of Law, Tulane University, New Orleans, Louisiana.

[1] Principles of Medical Ethics of the American Medical Association c. 2, §2; see Comment, 52 Col. L. Rev. 383 (1952); see also Brandeis, The Physician and the Medical Ethic, 38 Med. Rev. of Rev. 699 1932); Flanagan, The Spirit of "The Oath", 57 Va. Med. Monthly 538, 543 (1930); Smyth, Exchanges in Law and Medicine, 33 Institute of International Education News Bulletin 2 (Oct. 1957).

[2] See U. S. Const. Amend. V; see also Slovenko, Constitutional Limitations on the Rules of Evidence, 26 U. of Cin. L. Rev.—(Fall 1957).

person owes the duty of aiding in the settlement of controversies. A trial is an important public function, and the court can compel everybody concerned to attend and give evidence.

A right to keep secret information learned in confidence would deprive the court of evidence which may be highly probative and trustworthy. Such a right would be a blockade to the ascertainment of the truth. The late Professor Wigmore, the leading authority in the law of evidence, suggested four tests to determine the justification for the establishment of a privilege to keep information secret in the courtroom.[3] These are: (1) Does the communication originate in a confidence that it will not be disclosed? (2) Is the inviolability of that confidence essential to the achievement of the purpose of the relationship? (3) Is the relation one that should be fostered? (4) Is the expected injury to the relation, through the fear of later disclosure, greater than the expected benefit to justice in obtaining the testimony? With the exception of the third condition — that the physician-patient relationship should be fostered, Professor Wigmore is of the opinion that little can be said in favor of the view that the practice of medicine satisfies these conditions.[4] First of all, he maintains, it is only in a rare case that a communication by a patient to a physician originates in a confidence that it will not be disclosed. Most frequently, a patient seeks a chance to discuss his ailments with family, friends, neighbors, and even strangers.[5] Secondly, Wigmore believes that confidence is not essential for the achievement of the purposes of the relationship. He says that no patient ordinarily refrains from revealing his symptoms of distress to a physician for fear that they will be disclosed in court. The privilege is not necessary to induce persons to see a doctor. As one writer put it, the hospitals are as full and the doctors are as busy in those states which do not have the doctor-patient privilege as in those that do.[6] The fear, if any, which a patient may have is against disclosure of his condition among his friends and business associates, a fear which is generally allayed by the ethical requirement of the medical profession to preserve the confidence of their patients. This is not to say that the patient does not have legal protection against out-of-courtroom disclosure of confidential matter. The obligation of the doctor to maintain secrecy outside the courtroom is more a matter of personal honor and professional ethics.[7] He may be subjected to a tort suit for damages for defamation or for an invasion of the right of privacy.[8] In France and Germany, the violation of a professional secret on the part of a physician is a crime punishable by fine and imprisonment.[9] Lastly, Wigmore says, the injury to the doctor-patient relationship by disclosure is not greater than the social benefit gained by the correct disposal of litigation. Even in cases involving abortion and venereal disease, Wigmore is of the opinion that the injury to the relation by the doctor's testimony is outweighed by the benefit to society from his assistance in the administration of justice.

In 1776, in Westminster Hall, Elizabeth, Duchess of Kingston, was on trial for bigamy. To prove the first marriage, a surgeon who had attended the defendant in his professional capacity was called to the stand. He was asked: "Do you know from the parties of any marriage between

[3] 8 Wigmore, Evidence §2285 (3d ed. 1940).

[4] See 8 Wigmore, Evidence §§2380-91 (3d ed. 1940).

[5] See Freedman, Medical Privilege, 32 Can. Bar Rev. 1 (1954).

[6] Ladd, A Modern Code of Evidence, 27 Iowa L. Rev. 214 (1942).

[7] See Freedman, Medical Privilege, 32 Can. Bar Rev. 1, 10 (1954); Comment, 52 Col. L. Rev. 383, 397 (1952).

[8] See *Simonsen v. Swenson*, 104 Neb. 224, 177 N.W. 831 (1920); Challender, Doctor-Patient Relationship and the Right of Privacy, 11 U. Pitt. L. Rev. 624 (1950).

[9] Art. 378, Code Penal; Art. 300, Strafgesetzbuch.

them?" The physician refused to disclose anything that would violate his professional trust. The court said: "If a surgeon was voluntarily to reveal these secrets, to be sure he would be guilty of a breach of honour, and of great indiscretion; but to give that information in a court of justice, which by the law of the land he is bound to do, will never be imputed to him as any indiscretion whatsoever." [10] English law has never abandoned this statement of the legal obligation of the physician to testify when he is called to the witness stand. English law has granted a privilege to the lawyer, and to the lawyer alone, and this is primarily done, not because the lawyer's work is confidential, but because it is essential to the administration of justice.[11]

The medical privilege is an American statutory innovation originating in New York in 1828,[12] and since that time it has been conferred by statute by some thirty of the United States and the District of Columbia.[13] Without a statute the courts will not recognize the existence of the privilege.[14] The statutory medical privilege has been exercised in the courtroom most often in actions on life insurance policies where misrepresentation of the deceased as to health are at issue, actions for bodily injuries where the plaintiff's bodily condition is at issue, and testamentary actions in which the mental state and capacity of the testator are at issue.[15]

In recent years the number of statutory privileges for various and sundry professional relationships has been mushrooming. In a number of states, journalists,

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[10] Trial of Elizabeth, Duchess of Kingston, 20 Howell's State Tr. 355 (1776), discussed in Freedman, Medical Privilege, 32 Can. Bar Rev. 1 (1954).

[11] See Freedman, Medical Privilege, 32 Can. Bar Rev. 1 (1954). Regarding the husband-wife relationship: a spouse was deemed incompetent at common law to testify either for or against the other. See *Shenton v. Tyler* (1939) Ch. 620. The rule was based on the mythical family unity, and it was not until the incompetency of a spouse to testify was removed that legislation was passed making confidential communications between husband and wife privileged. See La. R.S. 15:461; 8 Wigmore, Evidence §§2332-41 (3d Ed. 1940); Brosman, Edward Livingston and Spousal Testimony in Louisiana, 11 Tulane L. Rev. 243 (1947); Note, 14 La. L. Rev. 427 (1954).

Regarding the clergyman-penitent privilege: at common law a communication made by a penitent in the confessional is not privileged. The antipathy of the English courts to the Roman Catholic Church prevented its ever becoming a part of the common law. See Privileged Communications to Clergymen, 3 Catholic Law. 199 (1955); Note, 30 Mich. L. Rev. 309 (1931).

[12] 2 N. Y. Rev. Stat. 406 (1828), now N. Y. Civ. Prac. Act §352,354. By "statutory" is meant a law established by the legislature.

[13] Ariz. Code Ann. §§23-103, 44-2702 (1939); Ark, Stat. Ann. §28-607 (1947); Cal. Code Civ. Proc §1881 (1949); Colo. Stat. Ann. c. 177, §9 (1935); Idaho Code Ann. §9-203 (1949); Ind. Ann. Stat. §2-1714 (Burns 1933); Iowa Code Ann. §622.10 (1950); Kan. Gen. Stat. Ann. §60-2805 (1949); La. R.S. 15:476; Mich. Comp. Laws §617.62 (1948); Minn. Stat. Ann. §595.02 (West 1946); Miss. Code Ann. §1697 (Supp. 1950); Mo. Rev. Stat. Ann. §1895 (1939); Mont. Rev. Code Ann. §93-701-4 (1947); Neb. Rev. State. §25-1206 (1943); Nev. Comp. Laws Ann. §8974 (1929); N. M. Stat. Ann. §20-112 (1941); N. C. Gen. Stat. Ann. §8-53 (1943); N. D. Rev. Code §31-0106 (1943); Ohio Code Ann. §11494 (1948); Okla. Stat. 12:385 (Cum. Supp. 1949); Ore. Comp. Laws Ann. §3-104 (1940); Pa. Stat. Ann. 28:328 (1930); S. D. Code §36.0101 (1939); Utah Code Ann. §104-24-8 (Supp. 1951); Va. Code §8-289.1 (1956); Wash. Rev. Stat. Ann. §1214 (1932); W. Va. Code Ann. §4992 (1949); Wis. Stat. §325.21 (1949); Wyo. Comp. Stat. §3-2602 (1945); and D. C. Code §14-308 (1940).

The remaining seventeen states retain the view of the English and American common law that there is no legal privilege for medical secrets: Ala., Conn., Del., Fla., Ga., Ill., Ky., Me., Md., Mass., N. H., N. J., R. I., S. C., Tenn., Tex., and Ver. But see *infra* note 37.

[14] That is, at common law, and by common law is meant the law produced by courts in the process of deciding cases, in absence of applicable constitutional or statutory provision. See *Dyer v. State*, 241 Ala. 679, 4 So. 2d 311 (1941); *Zeiner v. Zeiner*, 120 Conn. 161, 179 Atl. 644 (1935); *Florida Power & Light Co. v. Bridgeman*, 133 Fla. 195, 182 So. 911 (1938); see also *R. v. Gibbons*, 1 C. & P. 97, 171 Eng. Rep. 1117 (1823); 8 Wigmore, Evidence §2380 (3d ed. 1940).

[15] Clark, Summary of American Law 582 (1949); Note, 7 Miami L. Q. 580 (1953).

broadcasting and television newscasters, accountants, social workers, detectives, "confidential" clerks, stenographers, and trust companies have succeeded in obtaining special legislation granting them a privilege.[16] The counseling profession believes that a privilege should be established for secondary school and college counseling personnel. In states which have not enacted the physician - patient privilege, it has been urged that psychiatry be treated as a separate field of medicine and that a privilege be granted for the psychotherapist-patient relation.

It is obvious that if all groups desiring a privilege were granted it, there would not be much left as evidence in the trial of a case. The crucial question to be answered is whether the expected injury to the relation, through fear of later disclosure in the courtroom, is ever greater than the expected benefit to justice in obtaining the evidence. To a few legal scholars, the exclusion from trial of probative evidence is merely a secondary and incidental feature of the privileges' vitality, their social and moral significance and worth.[17] To the majority, however, legal privileges for confidential communications are considered to be a mistake.

Ever since 1879, the Louisiana Constitution has provided that the Legislature shall protect confidential communications made to practitioners of medicine, dentists and druggists by their patients and clients while under professional treatment and for the purpose of such treatment.[18] The constitutional privilege, however, was not considered to be self-executing,[19] and it was not until 1928, exactly a century after the New York enactment, that the Louisiana Legislature adopted a statute which provided that communications between physician and patient are privileged.[20] Since this provision is found in Louisiana in its Code of Criminal Procedure, there is ground to doubt whether there is justification for the exercise of the privilege in civil litigation. It is significant to observe that the medical privilege in some states is applicable only in civil cases; whereas in Louisiana the privilege is found in a code of procedure for criminal cases.[21] The locus of the Louisi-

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[16] See 8 Wigmore, Evidence §2286 (3d ed. 1940).

[17] For a defense of the confidential communication privileges generally, see Louisell, Confidentiality, Conformity and Confusion: Privileges in Federal Court Today, 31 Tulane L. Rev. 101 (1956). For a defense of the medical privilege in particular, see: *Arizona & New Mexico Ry. v. Clark*, 235 U. S. 669 (1915); *Munzer v. Swedish American Line*, 35 F. Supp. 493 (S.D. N.Y. 1940); *Woernley v. Electromatic Typewriters Inc.*, 271 N. Y. 228, 2 N.E. 2d 638 (1936); *Williams v. State*, 65 Okla. 336, 86 P. 2d 1013 (1939). The medical privilege in England, where it is not recognized, is advocated by some lawyers. See, e.g., 23 Law Notes 104 (1919); 183 L. T. 337 (1937); 66 Sol. J. 104 (1922); 64 Sol. J. 612 (1920).

[18] La. Const. of 1921, Art. 6, §12. Preceding constitutions: 1913, Art. 297; 1898, Art. 297, 1879, Art. 178. It declares: "The Legislature shall provide for the interest of State Medicine in all its departments; for the protection of the people from unqualified practitioners of medicine, dentistry, veterinary medicine and pharmacy; for protecting confidential communications made to practitioners of medicine and dentistry and druggists by their patients and clients while under professional treatment and for the purpose of such treatment; for the protection of the people against the sale, barter, gift and use of injurious or adulterated drugs, foods and drinks and against any and all misbranding and adulteration of the general necessaries of life of whatever kind or character."

[19] See *State v. Genna*, 163 La. 701, 112 So. 655, *cert. denied*, 275 U. S. 522 (1927). The Louisiana Supreme Court said in this case: "The objection was intended to raise generally the question of privilege between physician and patient. But there is no law in this state on that subject, Const. 1921, art. 6, §12, p. 26, not being self-operative." 163 La. 701, 715, 112 So. 655, 660. *Cf. State v. Lyons*, 113 La. 959, 37 So. 890 (1904); *State v. McCoy*, 109 La. 682, 33 So. 730 (1903).

[20] Art. 476, La. Code of Crim. Proc. of 1928 (same: La. R.S. of 1950, 15:476).

[21] For the view that the privilege in Louisiana is applicable only to criminal cases, see *Rhodes v. Metropolitan Life Ins. Co.*, 172 F. 2d 183 (5th Cir. 1949), *cert. denied*, 337 U. S. 930 (1949); see also *State v. Genna*, 163 La. 701, 112 So. 655 (1927). For the view in some of the other states that the privilege is applicable only in civil cases, see, *e.g.*, *Commonwealth v. Sykes*, 353 Pa. 392, 45 A. 2d 43, cert. denied, 328 U. S. 847 (1946); *State v. Dean*, 69 Utah 268, 254 Pac. 142 (1927). See: Cal. Code

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ana privilege can be justified, when it works in the accused's favor, by the fact that the criminal defendant is in law a favored party—he is presumed innocent and he need not offer any evidence. On one occasion, the federal court applying the law of Louisiana said in dicta:[22]

"The only statute in Louisiana providing that communications by patients to their physicians are privileged is article 476 of the Louisiana Code of Criminal Law and Procedure . . . The only privilege embodied in the Civil Code of Louisiana, applicable to civil actions, has to do with communications from a client to his attorney. Article 2283. No privilege appears in that Code with respect to communications to physicians. It is not the function of courts, nor, indeed, is it in any way within the province of the judiciary, where local law is administered under two codes, a criminal and a civil, to transpose the provisions of the one to the other or to interchange the statutory principles they enunciate in the absence of express authority. We are inclined, therefore, to the view that the privilege in question is restricted to criminal proceedings. However, should it transpire that we are mistaken in this view, it is clearly beyond doubt that the privilege may not be exercised by the plaintiff in this case." [23]

It is significant to note, however, that the general rules of evidence, which are applied in the various states in both civil and criminal cases, are for the most part found in Louisiana in the Code of Criminal Procedure, and yet they are applied in civil litigation, although somewhat loosely, due to the absence of civil jury trials.[24]

The Louisiana Code of Criminal Procedure, in addition to the physician-patient confidential privilege, provides for attorney-client,[25] clergyman-penitent,[26] and hus-

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[21] (Continued)
Civ. Proc. §1881 (1949); Idaho Code Ann. §9-203 (1949); Mich. Comp. Laws §617.62 (1948); Ore. Comp. Laws §3-104 (1940); Pa. Stat. Ann. 28:328 (1930); S. D. Code §36.0101 (1939); Utah Code Ann. §104-24-8 (Supp. 1951). In the remaining states, the privilege is applicable in both civil and criminal cases.

Although some of the statutes creating the privilege are more explicit than others, it is believed that the privilege in all states is available in proceedings before state legislative and administrative committees as well as in judicial proceedings. See Comment, 52 Col. L. Rev. 383, 388 (1952).

[22] In federal civil cases, Rule 43 of the Federal Rules of Civil Procedure requires the application of a three-pronged test of admissibility: federal statutes; state statutes, rules, or common laws; or federal equity practice. The statute or rule which favors the reception of the evidence governs. In criminal cases, Rule 26 of the Federal Criminal Rules requires the federal courts to apply federal statutes and a federal common law of evidence. See Louisell, Confidentiality, Conformity and Confusion: Privileges in Federal Court Today, 31 Tulane L. Rev. 101 (1956); Joiner, Uniform Rules of Evidence for the Federal Courts, 20 F.R.D. 429 (1957). Since there is no federal statute creating a physician-patient privilege, and since the privilege has no common law basis, it is doubtful whether such a privilege could be invoked in federal criminal cases. See 52 Col. L. Rev. 383, 388 (1952).

[23] *Rhodes v. Metropolitan Life Ins. Co.*, 172 F. 2d 183 (5th Cir. 1949), *cert denied*, 337 U.S. 930 (1949).

[24] See Comment, 14 La. L. Rev. 568 (1954). The Louisiana Supreme Court in 1927, shortly before the adoption of the Code of Criminal Procedure containing the rules of evidence, said that the rules of evidence are the same in Louisiana in civil and criminal cases. *State v. Wilson*, 163 La. 29, 111 So. 484 (1927). Prior to the adoption of the Code in 1928, the Louisiana courts applied common law evidence rules in both civil and criminal actions. *Quaere* as to the effect of the adoption of the Code of Criminal Procedure on civil evidence rules. The problem is discussed in Comment, 14 La. L. Rev. 568 (1954).

It is significant to observe that New York, *e.g.*, applies the medical privilege, which is found in its Civil Practice Act, to both civil and criminal cases. See In re Abortions in Kings County, 206 Misc. 830, 135 N.Y.S. 2d 381 (1954). *Accord:* Colo., Ind., Kan., Mo., Mont., Neb., Ohio, and Wash. See Comment, 52 Col. L. Rev. 383, 387 (1952).

[25] Art. 475, La. Code of Crim. Proc. of 1928 (La. R.S. of 1950, 15:475). See generally: 8 Wigmore, Evidence §2290 (3d ed. 1940); Radin, Privilege of Confidential Communications between Lawyer and Client, 16 Calif. L. Rev. 487 (1928); Notes, 29 Tulane L. Rev. 785 (1955), 20 Tulane L. Rev. 602 (1946).

[26] Art. 477, La. Code of Crim. Proc. of 1928 (La. R.S. of 1950, 15:477). In addition to Louisiana, some thirty-one states have adopted the priest-penitent privilege, and it is included in the Uniform Rules of Evidence. See Rule 29, Uniform Rules of Evidence; 8 Wigmore, Evidence §§2394-96 (3d ed. 1940). Adoption by statute of this privilege has caused no significant change, since as a practical matter, the privilege in the interest of religion existed *sub silencio*. It is rare when an attorney in the United States puts a priest to a claim of privilege.

band-wife [27] privileges. The Louisiana Civil Code, on the other hand, provides a privilege only for the attorney-client relationship.[28] In addition, the Louisiana Legislature, contrary to a recommendation of the American Bar Association,[29] has granted a privilege shielding communications between public accountants and their clients.[30] Wigmore was of the opinion that only the attorney-client, priest-penitent, and husband-wife relationships satisfy his four criteria to justify legislation for the protection of their confidential communications. In his argument against the physician-patient privilege, Wigmore did not discuss the psychotherapist-patient relation. However, as one law review writer has suggested, if one were to apply his tests to the psychotherapist-patient relationship, an affirmative answer can be reached to all four questions.[31] To quote:

"Since the very essence of psychotherapy is confidential personal revelations about matters which the patient is normally reluctant to discuss, any communications to a psychotherapist during the course of a consultation are (1) essentially of a confidential and secret nature; (2) less likely and far more difficult to obtain if the patient knows that they may be revealed during the course of some future law suit; (3) the outgrowth of a relationship which should be fostered; and (4) the type of information which if revealed would produce far fewer benefits to justice than the consequent injury to the entire field of psychotherapy." [32]

Guttmacher and Weihofen in their work *Psychiatry and the Law* submit that the possible injustice that might be done by the suppression of evidence in individual cases is outweighed by the importance of assuring patients that the confidentiality of their relations with their psychiatrist is absolute, and not subject to violation even on court summons.[33]

A great deal of time is required before a therapist is able to obtain the necessary confidence of his patient, and if there were any suspicion of revelation in the courtroom or anywhere else, the psychiatrist would not have the benefit of the statements either for diagnosis and treatment of his patient or for use in court. Frequently, a patient will make statements to his psychiatrist which he would not even make to the closest and dearest members of the family.[34] It is true that the general practitioner of medicine uses the methods of the psychotherapist in discussing with the patient his personal problems, but this is most often irrelevant to treatment, whereas in psychotherapy almost all information is pertinent to treatment. Moreover a privilege for the psychotherapist - patient relationship is at least as justified (depending upon one's religious views) as the priest-penitent privilege.[35]

In a 1952 case in Illinois, where there

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[27] Art. 461, La. Code of Crim. Proc. of 1928 (La. R.S. of 1950, 15:461). See Note, 14 La. L. Rev. 427 (1954).

[28] Art. 2283, La. Civil Code of 1870.

[29] The American Bar Association also disapproved of a privilege for social service workers and journalists. See Notes, 14 Albany L. Rev. 16 (1950), 45 Yale L. Rev. 357 (1935).

[30] La. R.S. of 1950, 37:85. Although this privilege does not appear in the Code of Criminal Procedure, it is probably applicable to criminal as well as civil actions. See Note, 32 Texas L. Rev. 453 (1954).

[31] Note, 47 N.W. U. L. Rev. 384 (1952).

[32] Note, 47 N.W. U. L. Rev. 384, 387 (1952).

[33] Guttmacher and Weihofen, Psychiatry and the Law 273 (1952). " . . . whatever criticism may be levelled against the privilege as applied to ordinary doctor-patient relationships, there is good reason for keeping it in cases of mental therapy, because of the highly confidential nature of the relationship that must be established before the therapist can diagnose the disorder and help the patient." Diamond and Weihofen, Privileged Communication and the Clinical Psychologist, 9 J. of Clinical Psychology 388 (Oct. 1953).

[34] Where the patient confesses infidelities, it is quite likely that the patient has litigation in mind, and consequently he would not speak freely if he suspected that the psychiatrist could be compelled to testify. "Sex laws in most all states irrationally penalize practically all sex activity, other than the most conventional heterosexual act. Hence, almost any clinical record containing details of sexual material could conceivably be the start of criminal action against the client." Diamond and Weihofen, Privileged Communication and the Clinical Psychologist, 9 J. of Clinical Psychology 388, 389 (Oct. 1953).

[35] See Note, 47 N.W. U. L. Rev. 384 (1952).

is no medical statute, Mr. X sued Mr. Y for alienating his wife's affections. Mr. X sought to question his wife's psychiatrist concerning information she had revealed during psychiatric consultations. The psychiatrist refused to testify on the ground that any communications to him in the course of psychotherapy were confidential and could not be divulged without the patient's consent. The Illinois trial court upheld the claim of privilege, even in the absence of a medical statute, and excused the psychiatrist from testifying. The case was not appealed.[36] Some three of the seventeen states which do not have the orthodox physician-patient privilege have recently passed legislation providing that "the confidential relations and communications between licensed applied psychologist and client are placed upon the same basis as those provided by law between attorney and client."[37]

The physician-patient privilege, and the other privileges as well (except possibly attorney-client), have come in for a great deal of criticism by prominent legal scholars,[38] and as a result, there has been a general tendency in the various states to delimit their statutory privileges, particularly the medical privilege, either by judicial or legislative action. As one court put it, there has been

"considerable criticism of physician-patient privilege statutes in recent years, on the ground that such statutes [have] but little justification for their existence and that they [are] often prejudicial to the cause of justice by the suppression of useful truth, 'the disclosure of which ordinarily [can] harm no one'." [39]

The writer is unaware of any trial or appellate case in Louisiana in which the exercise of the medical privilege has met with success. In apparently all of the reported cases of the Courts of Appeal [40] and the Supreme Court of Louisiana,[41] the court ruled that the privilege was not applicable, for one generally recognized reason or another, and that the testimony of the physician was necessary. This puts the writer in a position like that of the professor of history who was

[36] *Binder v. Ruvell*, Civil Docket 52C2535, Circuit Court of Cook County, Illinois, June 24, 1952, Judge Harry Fisher presiding. The case is noted in 47 N.W. U. L. Rev. 384 (1952). See also Guttmacher and Weihofen, Psychiatry and the Law 269 (1952).

[37] Ga. Code Ann. 84-3118 (1951); Ky. Rev. Stat. 319.110 (1948) (certified clinical psychologist); Tenn. Code Ann. 63-1117 (1953) (licensed psychologist or psychological examiner). See *supra* note 13.

[38] See for example: Callahan and Ferguson, Evidence and the New Federal Rules of Civil Procedure, 47 Yale L. J. 194, 207 (1937); Chafee, Privileged Communications: Is Justice Served or Obstructed by Closing the Doctor's Mouth on the Witness Stand?, 52 Yale L. J. 607 (1943); Curd, Privileged Communications between the Doctor and his Patient—An Anomaly of the Law, 44 W. Va. L. Q. 165 (1937); Lipscomb, Privileged Communications Statute—Sword and Shield, 16 Miss. L. J. 181 (1944); Morgan, Suggested Remedy for Obstructions to Expert Testimony by Rules of Evidence, 10 U. of Chi. L. Rev. 285 (1944); Purrington, An Abused Privilege, 6 Col. L. Rev. 388 (1906).

[39] *Boyles v. Cora*, 232 Iowa 822, 6 N.W. 2d 401, 414 (1942), quoted in *Van Wie v. United States*, 77 F. Supp. 22 (N.D. Iowa 1948).

[40] See generally: *Walker v. Monroe*, 62 So. 2d 676 (La. App. 1953); *May v. Cooperative Cab Co.*, 52 So. 2d 74 (La. App. 1951); *Morgan v. American Bitumuls Co.*, 39 So. 2d 139 (La. App. 1949), *aff'd*, 217 La. 968, 47 So. 2d 739 (1950); *Cade v. Tafaro*, 34 So. 2d 72 (La. App. 1948); *Thomas v. Maryland Cas. Co.*, 32 So. 2d 472 (La. App. 1947); *Law v. Kansas City Bridge Co.*, 199 So. 155 (La. App. 1941); *Gunter v. Alexandria Coca-Cola Bottling Co.*, 197 So. 159 (La. App. 1940); *Hines v. Heinkamp*, 194 So. 731 (La. App. 1940); *Comfort v. Cloverland Dairy Products Co.*, 194 So. 43 (La. App. 1940); *Shepard v. Whitney Nat'l Bank of New Orleans*, 177 So. 825 (La. App. 1938).

[41] See *State v. Genna*, 163 La. 701, 112 So. 655 (1927), *cert. denied*, 275 U. S. 522 (1927); *State v. Lyons*, 113 La. 959, 37 So. 890 (1904); *State v. McCoy*, 109 La. 682, 33 So. 730 (1903). It might be noted that these cases arose prior to the enactment of Article 476 of the Code of Criminal Procedure of 1928. The court in the *Lyons* and *McCoy* cases considered the physician-patient privilege, probably relying upon the constitutional provision concerning medical communications although it was not mentioned, but neither case upheld the privilege. It was in the *Genna* case in 1927 that the Louisiana Supreme Court ruled that the constitutional provision is not self-executing, and that the legislature must adopt the provision in order for it to be operative. See Comment, 31 Tulane L. Rev. 192 (1956). See also *Rhodes v. Metropolitan Life Ins. Co.*, 172 F. 2d 183 (5th Cir. 1949), *cert. denied*, 337 U.S. 930 (1949).

invited to give a lecture on the private life of Catherine of Russia. He started his lecture thus: "Gentlemen, I am to lecture on the private life of Catherine of Russia; gentlemen, Catherine of Russia had no private life." [42] In a similar vein, we might say, there is no physician-patient privilege in Louisiana. The same can almost be said for the law of the other states.

It is to the task of enumerating the legislative and jurisprudential restrictions on the physician-patient privilege that we now address ourselves. In each state the relevant statute and the judicial decisions interpreting it must be consulted. Generalizations in this area of the law are particularly dangerous. The decisions in the several states interpreting their medical statute are sometimes contradictory.

Article 476 of the Louisiana Code of Criminal Procedure of 1928 provides:

"No physician is permitted, whether during or after the termination of his employment as such, unless with his patient's express consent, to disclose any communication made to him as such physician by or on behalf of his patient, or the result of any investigation made into the patient's physical or mental condition, or any opinion based upon such investigation, or any information that he may have gotten by reason of his being such physician; provided, that the provisions of this article shall not apply to any physician, who, under the appointment of the court, and not by a selection of the patient, has made investigation into the patient's physical or mental condition; provided, further, that any physician may be cross-examined upon the correctness of any certificate issued by him." [43]

As already stated, there is no counterpart in the Louisiana Civil Code of Practice for the physician-patient privilege.[44]

The Louisiana Constitution states that the Legislature shall protect confidential communications made to practitioners of medicine and dentistry and druggists.[45] However, the statute in the Louisiana Code of Criminal Procedure, putting the constitutional provision into operation, provides merely for "physicians". The majority of statutes of the various states also refer simply to "physicians". The Model Code of Evidence of the American Law Institute recommends that a "physician" be defined as a person authorized by the state licensure act (or reasonably believed by a patient to be authorized) to practice medicine, but no cases have been found which expressly accept this definition as controlling. As a rule, the courts construe the term "physician" to exclude chiropractors, veterinarians, pharmacists, psychologists, dentists, Christian Science practitioners, and medical students from the privileged class. Let us take an example. In a case in Iowa, where the statute provides for practicing physicians and surgeons, the owner of a race horse sued Western Union for delay in transmitting a telegram: "Bravo is sick; come at once." At last the veterinarian arrived, but Bravo died. The attorney for Western Union asked the doctor at the trial what the owner said to him about Bravo's symptoms. The owner claimed that the medical statute protected professional communications from disclosure, but the court held that veterinary surgeons were not covered by the privilege.[46]

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[42] Warren, ed., Federal Administrative Procedure Act and the Administrative Agencies 142 (1947).

[43] Same: La. R.S. of 1950, 15:476. Louisiana law also provides that a physician may claim exemption from jury service, Art. 174, Code of Crim. Proc. (La. R.S. of 1950, 15:174), and La. R.S. of 1950, 13:3042; and he is not required to attend court as a witness if the life of a patient is thereby endangered, La. R.S. of 1950, 13:3667.

[44] See *supra* note 21.

[45] See *supra* note 18.

[46] *Hendershott v. Western Union Telegram Co.*, 106 Iowa 529, 76 N.W. 828 (1898), noted in Chafee, Privileged Communications: Is Justice Served or Obstructed by Closing the Doctor's Mouth on the Witness Stand?, 52 Yale L.J. 607, 611 n. 16 (1943).

In jurisdictions whose statutes grant the privilege to "physicians" without qualifying the word, there is little doubt that psychiatrists are included within the meaning of the statute. See *San Francisco v. Superior Court*, 37 Cal. 2d 227, 231 P. 2d 26 (1951); *cf. In re Flint*,, 100 Cal. 391, 34 Pac. 863 (1893). According to the medical profession, the term "physician" is applicable to holders of physicians' licenses. See Comment, 52 Col. L. Rev. 383, 393 (1952).

"Where the privilege exists, it generally applies

(Continued)

Even nurses and other attendants to the "orthodox" physician are not protected in many states.[47] It goes without saying that nurses and other attendants who gather and record information while acting for and in conjunction with a physician should come within the privileged class. The purpose and policy of the medical statute is thwarted by the court when it requires evidence from such a class of witnesses.[48] The courts fail to

[46] (Continued)
to all licensed physicians and surgeons, and thus includes psychiatrists. Conversely, it excludes anyone who is not licensed to practice as a physician or surgeon. Thus clinical psychologists, psychiatric social workers, lay analysts and others who may practice psychotherapy should be aware that no privilege exists for confidential communications of their clients. As desirable as it may seem to be that confidence of a client in the intimate psychotherapeutic situation be protected against legal invasion, no such protection exists for non-medical therapists. The psychologist or analyst may be compelled to testify in court and his clinical records may be subpoenaed. Clearly, the attitude of the law jeopardizes the most essential element of the psychotherapeutic situation. Few patients, indeed, could be induced to talk freely of the intimate details of their lives if they had reason to believe that their confidence would be violated. If the position is correct that psychotherapy calls for such assured confidentiality that the privilege should be recognized in such cases, the question arises whether it should exist only as to psychiatrists, or whether it should be extended to non-medical therapists. If the law of a given state recognizes that psychologists, lay analysts and similar workers perform a useful and legitimate function by legalizing their practice, it would seem that it should extend to them the 'privileged communication' rule. They should not be hamstrung by the possibility that what is said in the confidence of the consulting room may be revealed on subpoena in the court room. Most of the existing statutes were adopted at a time when it did not occur to legal draftsmen that one could practice the healing arts without drugs or surgery, and certainly before modern psychotherapy was born. Perhaps the statutes should be rewritten, to extend the privilege to all practitioners generally accepted as competent to treat mental or emotional disorders and to the assistants of such practitioners. Whether it should apply to practitioners treating physical disorders, or should be abrogated as to them, is . . . a controversial question." Diamond and Weihofen, *Privileged Communication and the Clinical Psychologist*, 9 J. of Clinical Psychology 388 (Oct. 1953).

[47] *Nurses*: See *First Trust Co. of St. Paul v. Kansas City Life Ins. Co.*, 79 F. 2d 48 (8th Cir. 1935); *Southwest Metals Co. v. Gomez*, 4 F. 2d 215 (9th Cir. 1925); *Leusink v. O'Donnell*, 255 Wis. 627, 39 N.W. 675 (1949). But see: "It is true the authorities on the question appear to be divided. A number of courts hold that the statutory privilege does not exclude the testimony of a nurse attending the physician. Other courts have permitted such testimony where it appears the information sought to be elicited was acquired from sources separate and distinct from action in concert with a physician against whom the claim of privilege is made. On the other hand, some jurisdictions take the view that the privilege extends by implication to nurses or attendants who are employees or acting under the direction of the physician examining or treating the patient. In our opinion, the latter view to a greater extent carries out the intent and purport of the statute creating the privilege." *Ostrowski v. Mockridge*, 242 Minn. 265, 65 N.W. 2d 185, 190-191 (1954). *Cf. Ault v. Hall*, 119 Ohio St. 422, 164 N.E. 518 (1958) (doctor responsible in tort for negligence of nurses under his control). The statutes of a few states specifically include nurses, as, *e.g.*, Arkansas, Iowa, New Mexico, and New York. See 8 Wigmore, Evidence § 2380 n. 5 (3d ed. 1940). *Other attendants*: See *Prudential Life Ins. Co. of America v. Koslowski*, 226 Wis. 641, 276 N.W. 300 (1937).

[48] See Note, 19 Iowa L. Rev. 104 (1933). As Chief Justice Hughes of the United States Supreme Court once said, "A statute finally means what the Court says it means." Quoted by Judge Frank in *Guiseppi v. Walling*, 144 F. 2d 608 (2d Cir. 1944). "Laws neither execute nor interpret themselves." *Ibid.* The process of supplementing statutes is called "interpretation" or "filling in the gaps", but what is theoretically only interpretation of a statute is most often in reality judge-made law. See Slovenko, Natural and Positive Law as viewed from General Value Theory, 10 J. Legal Ed. 46, 54 (1957). This is not to say that the courts alone have restricted the scope of the medical privilege. Restrictions have also been placed by legislatures. The statutes of some states, for example, do not protect communications involving abortion, venereal disease or narcotics, or the reporting of suspicious death, or of gunshot or knife wounds. See Article 476 of the Louisiana Code of Criminal Procedure, cited *supra* note 43, and see also *infra* notes 49, 64, 72, 79, 83; Busch, Law and Tactics in Jury Trials § 431 (1949).

For general discussions on chiropractors, druggists, dentists, nurses, orthopedists and veterinarians, see: Notes, 23 Geo. L. J. 297 (1935), 19 Ill. L. Rev. 360 (1930), 19 Iowa L. Rev. 104 (1933). (Continued)

show ordinary deference to the medical statute, not because of any animosity between the professions of law and medicine, but because the privilege excludes evidence which often is essential for the fair administration of justice.

The medical privilege is also limited in scope by the meaning which is given to the term "patient". A person is a "patient" within the meaning of the statute if he consults the physician for the purpose of seeking preventive, curative or alleviative treatment. A person who is examined, with or without his consent, by a physician at the request of police officers or the court, does not come within the privilege class. The Louisiana Legislature declared in Article 476 that

"the provisions of this article shall not apply to any physician, who, under the appointment of the court, and not by a selection of the patient, has made investigation into the patient's physical or mental condition." [49]

Apparently, in Louisiana, the patient himself, or his family on his behalf, must employ and pay the physician.[50] All of the states hold that the privilege only covers information which comes to the physician in the course of his professional relation and not what he learns socially,[51] and they also hold that the privlege does not apply when the physician makes the examination at the request of the other party to the lawsuit.[52] Some states hold that a doctor who attends a person during his lifetime cannot be compelled to relate information obtained by autopsy.[53] Other states, however, rule that the privilege ends upon death of the patient, and any physician can be called upon to testify concerning the autopsy.[54] Apparently, a deceased body is not considered to be a patient. It is an interesting and debatable question whether the privilege covers information obtained by a physician while attending an unconscious person in an attempt to bring him back to consciousness, or to restore him to life.[55]

Statements to a physician which lack pertinency to treatment are not privileged. The statement must be "necessary" to discharge the doctor's function in the usual course of practice.[56] Thus, in one Louisiana case,[57] the patient sued for damages for injuries allegedly resulting from a defective stairway. His statement to the interne that he received his injuries as a result of a fall from a curbing is not covered by the privilege as it is irrelevant to treatment. Statements as to the cause of the injury or ailment may or may not be within the privilege, depending upon whether or not the communication is

[48] (Continued)
13 Iowa L. Rev. 118 (1927), 13 St. Louis L. Rev. 91 (1928), 59 W. Va. L. Rev. 99 (1956).

The rule may also be noted here that the privilege of professional communications is destroyed when made in the presence of third persons since it was not made in confidence. The rule is qualified for the attorney-client privilege when the third party is an employee of either the attorney or client. See Comment, 36 Mich. L. Rev. 641 (1938).

[49] See *State v. McCoy*, 109 La. 682, 33 So. 730 (1903) (examination ordered by court). See also *State v. Cram*, 176 Ore. 577, 160 P. 2d 283 (1945) (physician-patient privilege and the privilege again self-incrimination inapplicable to compulsory blood tests); Ladd and Gibson, The Medico-Legal Aspects of the Blood Test to Determine Intoxication, 24 Iowa L. Rev. 190, 251-262 (1939).

[50] See *Morgan v. American Bitumuls Co.*, 39 So. 2d 139 (La. App. 1949).

[51] The general rule apparently is that it is not necessary that the patient himself call the physician, or that he pay or expect to pay a fee, provided that the physician visits him in his professional capacity. Information obtained in merely social contacts with the patient is not privileged. Clark, Summary of American Law 582 (1949).

[52] See *Nesbit v. People*, 19 Colo. 441, 36 Pac. 221 (1894). But see *Munz v. R. Co.*, 25 Utah 220, 70 Pac. 852 (1902) where a doctor sent by the defendant streetcar company to examine the injured party was not permitted to testify.

[53] See Rule 222, A.L.I. Model Code of Evidence (1942); cases in 58 A.L.R. 1127, 1134 (1929).

[54] See *Cross v. Equitable Life Assurance Society*, 228 Iowa 800, 293 N.W. 464 (1940).

[55] See conflicting opinions in *Palmer v. Order of United Commercial Travelers*, 187 Minn. 272, 245 N.W. 146 (1932). See Morgan, Basic Problems of Evidence 111 (1954).

[56] See *Van Wie v. United States*, 77 F. Supp. 22 (N.D. Iowa 1948); *Williams v. Alexander*, 309 N.Y. 283, 128 N.E. 2d 417 (1955), noted in 31 Notre Dame Law. 502 (1956).

[57] *Shepard v. Whitney Nat'l Bank*, 177 So. 825 (La. App. 1938).

necessary or helpful to the physician in diagnosis or treatment. It is appropriate for a general practitioner to know that his patient stepped on a rusty nail, but not whether someone intentionally placed it in his pathway. This is the way one court expressed it:

"Statements of an injured person to his physician as to matters connected with the occasion out of which the injuries arose and observations by a physician of the patient and of the facts surrounding the injury would seem to stand or fall as privileged communications on their possible relevancy to treatment or on their relevancy as reasonably believed by either the physician or patient or both of them . . . While it is realized that it is common and natural human behavior for one in recounting a series of events which gave rise to an injury of a certain nature to include much data irrelevant to the ascertainment of the correct type of treatment to be administered, and while it is perhaps desirable that much latitude be allowed these statements as privileged communications to encourage disclosure of all facts necessary for treatment, an extension of the privilege to circumstances related by the patient which could have no possible bearing on the treatment of the injury or other professional service is beyond the plain language of the statute and the most liberal construction of it." [58]

This rule might put the patient on his guard and defeat the statutory policy of encouraging free disclosure of information which may be helpful in treatment. The patient is often unaware whether a given fact is necessary to his treatment.

The privilege is inapplicable in all states if a person seeks the services of a physician in order to commit a crime (e.g., abortion) or to escape detection or apprehension after the commission of a crime.[59] In fact, a physician who helps a known criminal to escape by professional treatment would himself be guilty of crime (accessory after the fact). The late Professor Chafee of the Harvard Law School discusses a famous case:

"While Dillinger, the former Public Enemy No. 1, was fleeing from prison, he went to Dr. May to be treated for gunshot wounds incurred during his escape. Was Dr. May ethically bound as a physician to preserve secrecy or was he under a duty as a citizen to notify the police? In fact he neglected to inform the police of his ministrations and was consequently imprisoned two years for harboring a fugitive wanted under a federal warrant." [60]

Some time ago the American Psychoanalytic Association and the American Psychiatric Association protested an article written by FBI Director J. Edgar Hoover in the *Journal of the American Medical Association* in which he urged physicians to report to the Bureau any facts relating to espionage, sabotage, or subversive activity which come to their attention. Probably Mr. Hoover would also urge an attorney, priest or spouse to make a similar report. The medical associations maintained that knowledge by patients that psychiatrists were informers would do far more harm by its adverse effect on treatment than any good it could possibly do the government.[61]

Louisiana law makes it a criminal offense for any individual who knows of treasonous activities and fails to notify the proper authorities, but there is no such duty in Louisiana with regard to other offenses.[62] In addition, in Louisiana, a physician is required to report suspicious death to proper authorities.[63] More-

[58] *Van Wie v. United States*, 77 F. Supp. 22 (N.D. Iowa 1948).

[59] See Morgan, Basic Problems of Evidence 111 (1954).

[60] Chafee, Privileged Communications: Is Justice Served or Obstructed by Closing the Doctor's Mouth on the Witness Stand?, 52 Yale L. J. 607, 615n.39 (1943).

[61] See Hoover, Let's Keep America Healthy, 144 J.A.M.A. 1094, 1095 (1950); Guttmacher and Weihofen, Psychiatry and the Law 275 (1952); Comment, 52 Col. L. Rev. 383 1952).

[62] See La. R.S. of 1950, 14:25, 115.

[63] Article 39 of the Louisiana Code of Criminal Procedure (La. R.S. of 1950, 15:39) provides that it is the duty of a physician who has first knowledge of the death of any person who shall have died suddenly, accidentally, violently, or as a result of any suspicious circumstances, or without medical attendance within thirty-six hours prior to death, or any case of death due to abortion, to immediately notify the coroner and the district attorney of the death. The article also provides that clothing or other evidence is not to be destroyed and the body is not to be removed without the permission of both the coroner and the district attorney.

Many states require the reporting of gun or knife wounds. See, *e.g.*, Ariz. Code Ann. §43-2208 (1939); Cal. Gen. Laws §3431(1) (1943).

over, under the Uniform Narcotic Drug Act, which Louisiana and about half the states have adopted,[64] a physician can be compelled to testify in the courtroom concerning communications made "in an effort unlawfully to procure a narcotic drug, or unlawfully to procure the administration of any such drug." [65] This limitation to the medical privilege is designed for the prevention of crime and for the protection of the public health. The value of disclosure is said to override the duty to respect a patient's confidence.

Article 478 of the Code of Criminal Procedure provides that the right to exclude the testimony is purely personal, and can be set up only by the person in whose favor the right exists. If the right is waived, declares Article 478, the physician may be examined and cross-examined to the same extent as any other witness. This is to say, the privilege belongs to the patient, and not to the physician, and can be claimed only by the patient. If the patient consents to the disclosure, the doctor cannot insist on remaining silent. Moreover, as a result of this legislation, it has been urged that the physician may be required to testify whenever the patient is not a party to the suit.[66] It is debatable whether the requirement in Article 478, that the privilege can be set up only by the person in whose favor it exists, means that the patient must be a party plaintiff or defendant in the case, or whether it is sufficient that he is present at the trial simply as a witness. At any rate, the article clearly states that the patient must claim the privilege, and to do this he must at least be present at the trial. It follows from this rule that death terminates the privilege.[67] Thus, for example, an insurance beneficiary is not able to invoke the privilege of the insured, and an heir or legatee to a will is not able to claim the privilege of the testator. Other jurisdictions apparently allow the privilege to be claimed on behalf of a patient when he is out of court,[68] and some allow the claim even after the patient's death.[69] In the Illinois alienation-of-affections case,[70] the wife was not a party plaintiff or defendant in the suit, yet the trial court allowed her psychiatrist when called to the stand to invoke the privilege in her behalf. Such a rule guarantees to a patient that his communication will be protected from disclosure irrespective of whether he is in court as a party litigant or witness or whether he is out of court.

Perhaps the most important limitation on the medical privilege is the rule that it is waived (perhaps to the patient's entire medical history) when physical or mental health is put in issue by the pa-

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[64] See Chafee, Privileged Communications: Is Justice Served or Obstructed by Closing the Doctor's Mouth on the Witness Stand?, 52 Yale L. J. 607, 608n.5 (1943); Morgan, Basic Problems of Evidence 109 (1954).

[65] La. R.S. of 1950, 40:978(B). See Uniform Narcotic Drug Act, §17; see also Anslinger, The Physician and the Federal Narcotic Law, 20 Tulane L. Rev. 309 (1946).

[66] See Comment, 31 Tulane L. Rev. 192 (1956). "Under article 478 of the Louisiana Code of Criminal Law and Procedure, the privilege of excluding a physician's testimony is a purely personal right: It can be set up only by a person in whose favor the right exists." *Rhodes v. Metropolitan Life Ins. Co.*, 172 F. 2d 183 (5th Cir. 1949).

[67] The court in *Rhodes v. Metropolitan Life Ins. Co.*, 172 F. 2d 183 (5th Cir. 1949), held that the personal representative of the deceased cannot invoke the privilege for the deceased. See also Note, 2 Syr. L. Rev. 370 (1951).

[68] For the attorney-client privilege, Rule 105(e) of the A.L.I. Model Code provides that, if the client is neither party nor witness, the judge in his discretion may of his own motion exclude evidence which would violate the privilege if it has not been waived or otherwise terminated. No authority has been found for or against this provision. See Morgan, Basic Problems of Evidence 106 (1954).

[69] See *Bassil v. Ford Motor Co.*, 278 Mich 173, 270 N.W. 258 (1936); *David v. Supreme Lodge*, 165 N.Y. 159, 58 N.E. 891 (1900); *O'Brien v. General Acc. Fid. & Life Assur. Corp.*, 42 F. 2d 48 (8th Cir. 1930). "The privilege does not end with the relationship or with the life of either the physician or the patient. It may be claimed by the representative of a deceased patient." Morgan, Basic Problems of Evidence 113 (1954).

[70] See *supra* note 36.

tient.[71] As Professor Chafee put it, he cannot make the statute both a sword and a shield. The confidence of the medical consultation is considered to be no longer necessary, because, in bringing suit, the patient makes his health a matter of public record. It is believed that a good faith claimant suing for personal injuries would not object to the testimony of the physician who examined or treated him, but rather would want him to testify. This view is exemplified in some states by legislation that suit for personal injuries waives the medical privilege.[72] The tradition in ordinary lawsuits is that a party who fails to bring in available information needed for an enlightened decision deserves to lose the case. In Louisiana, the Courts of Appeal (apparently assuming the applicability of the medical statute in civil cases) have stated that the exercise of the privilege raises a presumption that the testimony excluded would have been adverse to the party's claim.[73] The opposing counsel has the right to comment on the assertion of the privilege, and the court will draw the unfavorable inference from the claim of the privilege that the patient is hiding valuable information.[74] In view of this, a patient does not stand much chance of winning his case in court when he seals the lips of his physician. The protection of the medical statute is destroyed indirectly by the presumption that the evidence must be unfavorable or it would have been produced. The privilege is nullified, in effect, if its exercise will adversely influence the result of the case. For this reason, the rule in some jurisdictions is that no inference is to be drawn concerning the facts suppressed when the privilege is claimed by the patient.[75]

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[71] See Chafee, Privileged Communications: Is Justice Served or Obstructed by Closing the Doctor's Mouth on the Witness Stand?, 52 Yale L.J. 607, 610 (1943); Morgan, Basic Problems of Evidence 113-114 (1954); Notes, 51 Harv. L. Rev. 931 (1938); 31 Yale L. J. 529 (1922).

[72] See Cal. Code Proc. §1881.4 (1941); Mich. Comp. Laws §617.62 (1948). The California legislation provides that bringing suit for personal injuries or for wrongful death waives the privilege as to any physician who has prescribed for or treated the plaintiff or who attended the deceased. See Guttmacher and Weihofen, Psychiatry and the Law 282 (1952); Comment, 52 Col. L. Rev. 383, 387 (1952); Note, 7 Miami L. Q. 580 (1953). See also Note, 28 Wash. L. Rev. 237 (1953).

[73] In *Morgan v. American Bitumuls Co.*, 39 So. 2d 139 (La. App. 1949), the court ruled that the medical privilege cannot be exercised in cases involving workmen's compensation. The injured employee seeking compensation cannot object to the testimony of the examining physician. It is usually provided in Workmen's Compensation Acts that a physician may be required to testify to information procured in attending the claimant. See 8 Wigmore, Evidence §2380 (3d ed. 1940). This is an illustration of a restriction by the legislature itself upon the privilege. See also *supra* notes 49, 64, 72 and *infra* notes 79, 83 for further limitations by the legislature. Louisiana legislation provides that in workmen's compensation cases, the court is not "bound by technical rules of evidence or procedure other than as herein provided." La. R.S. of 1950, 23:1316. The claim has been made that some physicians paid by employers take advantage of their position to obtain from the injured employee information about the accident which would tend to defeat a claim for damages. See Chafee, Privileged Communications: Is Justice Served or Obstructed by Closing the Doctor's Mouth on the Witness Stand?, 52 Yale L. J. 607, 610 (1943). The fact that the physician is hired by the employer is considered in determining the weight to be given his testimony. *See Johnson v. Hillyer, Deutsch, Edwards Inc.*, 185 So. 652 (La. App. 1939).

[74] See *Walker v. Monroe*, 62 So. 2d 676 (La. App. 1953); *May v. Cooperative Cab. Co.*, 52 So. 2d 74 (La. App. 1951); *Thomas v. Maryland Cas. Co.*, 32 So. 2d 472 (La. App. 1947); *Law v. Kansas City Bridge Co.*, 199 So. 155 (La. App. 1941); *Gunter v. Alexandria Coca-Cola Bottling Co.*, 197 So. 159 (La. App. 1940); *Hines v. Heinkamp*, 194 So. 731 (La. App. 1940); *Comfort v. Cloverland Dairy Products Co.*, 194 So. 43 (La. App. 1940). The court on numerous occasions has stressed the importance that it gives to medical testimony. See *Diggins v. Salley & Ellis*, 199 So. 442 (La. App. 1941); *Sweet v. La. Long Leaf Lumber Co.*, 18 La. App. 238, 138 So. 171 (1931); *Weller v. Turnerized Roofing Co.*, 14 La. App. 150. 129 So. 443 (1930); *Arrender v. Giant Timber & Mfg. Co.*, 9 La. App. 132, 119 So. 498 (1929).

[75] See *New York Life Ins. Co. v. Newman*, 311 Mich. 369, 18 N.W. 2d. 859 (1945). "There are conflicting views as to whether it is proper for counsel to comment on the exercise by the opposing party of a privilege with respect to testimony or the calling of a witness. By what seems to be the

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If a physician may refrain from telling the court what he has learned in a professional capacity, then it would seem to follow that public and private hospital records (or clinical records) in which the physician records his observations would be just as unavailable. Hearsay is an out-of-court statement, and unless the person who made the hospital record was called as a witness to testify to its correctness, the Louisiana courts excluded the record on the basis of the rule against the reception of hearsay evidence.[76] Some states hold that hospital records fall under an exception to the hearsay rule.[77] In such a case, the question then arises whether the physician-patient privilege is a basis for exclusion. The physician-patient privilege was not the reason for the exclusion of hospital records in Louisiana, as it is in some states.[78] Not too long ago the Louisiana Legislature enacted a statute which provides that a certified copy of a chart or record of the charity and veteran hospitals in the State is admissible in evidence as prima facie proof of its contents when signed by proper authority.[79] It might be noted that this statute applies only to public hospitals, and that, curiously enough, it squares with the Louisiana jurisprudential rule for the medical privilege that the patient must hire a physician.[80] It may be urged that the enactment by the legislature of the charity and veteran hospital statute is not in accord with the spirit of the constitutional provision directing the legislature to protect medical confidential communications.[81] Moreover, the broad interpretation which the Louisiana courts have given to the hospital-records statute has served even further to delimit the scope of the physician-patient privilege.[82] However, the

[75] (Continued)
better rule, it is held improper for counsel to make such remarks . . . The prohibition against disclosure of professional secrets is manifestly an exercise of public policy. It secures a right to every individual which he is under no obligation to waive or abandon . . . To hold that, because the patient does not waive or abandon the prohibition, inferences adverse to his side of the controversy may be drawn by the jury, would be to fritter away the protection it was intended to afford. When it is the legal right of a party not to have some specific piece of testimony marshaled against him, he may exercise that right without making it the subject of comment for the jury." See cases quoted in *McLaughlin v. Massachusetts Indemnity Ins. Co.*, 85 Ohio App. 511, 84 N.E. 2d 114 (1948).

[76] See *Dolan v. Metropolitan Life Ins. Co.*, 11 La. App. 276, 123 So. 379 (1929); McCormick, The Use of Hospital Records as Evidence, 26 Tulane L. Rev. 371 (1952).

[77] Some states bring hospital records under the hearsay exception for regular entries in the course of business, or under the hearsay exception for public official records. See McCormick, The Use of Hospital Records as Evidence, 26 Tulane L. Rev. 371 (1952). The Louisiana Legislature in Act 267 of 1928 expressly excluded hospital records from the public records exception (Act 242 of 1912) to the hearsay rule.

[78] *Munzer v. Blaisdell*, 183 Misc. 773, 49 N.Y.S. 2d 915 (1944); Note, 27 N.Y.U.L. Rev. 160 (1952). "In states having the privilege it is now generally agreed that as to records which incorporate statements by the doctor and those which embody the doctor's diagnosis and findings as to the patient's condition, the privilege does not apply. As to whether other information recorded by nurses or attendants, such as the history given to the nurse by the patient or the nurse's charts showing such things as temperatures and treatment, will come in, the question is more debatable." McCormick, The Use of Hospital Records as Evidence, 26 Tulane L. Rev. 371, 373 (1952). See also 8 Wigmore, Evidence §2382(c) (3d ed. 1940); Hale, Hospital Records as Evidence, 14 So. Cal. L. Rev. 99 (1941); Comment, 54 Yale L. J. 868 (1945).

[79] See La. R.S. of 1950, 13:3714, as amended by La. Act 519 of 1952. The records are "prima facie" proof of their contents. See *State v. Graffam*, 202 La. 869, 13 So. 2d 249 (1943). "Prima facie" means that the evidence is sufficiently strong for the opponent to be called on to answer it. To be admissible, the record must be signed by the superintendent or secretary-treasurer of the board of trustees of the hospital. The party against whom the record is to be used may summon and examine those making the original of the record as witnesses under cross-examination. See La. R.S. of 1950, 13:3714, as amended. See generally: McCormick, The Use of Hospital Records as Evidence, 26 Tulane L. Rev. 371, 373 (1952); Notes, 31 N.Y.U.L. Rev. 844 (1956), 31 Notre Dame Law. 502 (1956), 1 Villanova L. Rev. 353 (1956).

[80] See *supra* note 51 and supported text.

[81] See Comment, 31 Tulane L. Rev. 192 (1956).

[82] See *Lado v. First Nat'l Life Ins. Co.*, 182 La. 726, 162 So. 579 (1935); *Shepard v. Whitney Nat'l* Bank, 177 So. 825 (La. App. 1938).

application of the physician-patient privilege to hospital records has little justification when the matter has become a part of a record open to public inspection, inasmuch as the privilege is designed to protect only confidential communications.

In 1938, the American Bar Association's Committee on Improvements in the Law of Evidence made a report on the medical privilege, which included the following recommendation:

"The amount of truth that has been suppressed by this statutory rule must be extensive. We believe that the time has come to consider the situation. We do not here recommend the abolition of the privilege, but we do make the following recommendation: The North Carolina statute allows a wholesome flexibility. Its concluding paragraph reads: 'Provided that the presiding judge of a superior court may compel such a disclosure if in his opinion the same is necessary to the proper administration of justice.' This statute has needed but rare interpretation. It enables the privilege to be suspended when suppression of a fraud might otherwise be aided." [83]

This provision—that the judge may require the disclosure by a physician of a privileged communication from a patient if in the opinion of the judge such disclosure is necessary to a proper administration of justice—may be the best accommodation between the professions of "Order" and "Health".

[83] See A.L.I., Model Code of Evidence, Rules 220-23 (1942); see also Morgan, Basic Problems of Evidence 109 (1954); Freedman, Medical Privilege, 32 Can. Bar Rev. 1, 8 (1954).

Virginia, the most recent state to adopt a physician-patient privilege, includes in its statute the recommended proviso as well as many of the jurisprudential restrictions prevailing in the various states. It provides: "Except at the request of, or with the consent of, the patient, no duly licensed practitioner of any branch of the healing arts shall be required to testify in any civil action, suit or proceeding at law or in equity respecting any information which he may have acquired in attending, examining or treating the patient in a professional capacity if such information was necessary to enable him to furnish professional care to the patient; provided, however, that when the physical or mental condition of the patient is at issue in such action, suit or proceeding or when a judge of a court of record, in the exercise of sound discretion, deems such disclosure necessary to the proper administration of justice, no fact communicated to, or otherwise learned by, such practitioner in connection with such attendance, examination or treatment shall be privileged and disclosure may be required. This section shall not be construed to repeal or otherwise affect the provisions of §65-88 relating to privileged communications between physicians and surgeons and employees under the Workmen's Compensation Act; nor shall the provisions of this section apply to information communicated to any such practitioner in an effort unlawfully to procure a narcotic drug, or unlawfully to procure the administration of any such drug." Code of Va. §8-289.1 (1956, c. 446).

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ACUTE PANCREATITIS *

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In acute pancreatitis, surgery provides decompression of the ductal system, removal of toxic materials, and an accurate estimate of the fluid loss in the peritoneal cavity. Conservative treatment frequently requires surgery as a last resort when the risk is great.

CASE REPORTS

The following cases are presented:

Case No. 1.—White female, age 45, first seen June 30, 1948, with a chief complaint of severe abdominal pain of twenty-four hours' duration. Her father had died of acute pancreatitis; her mother had survived a proved attack of acute pancreatitis. The entire right half of the abdomen was rigid and tender. A markedly elevated serum amylase confirmed her physician's diagnosis of acute pancreatitis.

Conservative treatment of nasogastric suction, antibiotics, electrolytes and sedatives did not halt the course of the illness. White count rose from 32,000 to 40,000. Her pulse became rapid; the pain and toxicity increased. Thirty hours after admission, exploratory laparotomy was done. Fat necrosis was visible and large amounts of greasy, bloody fluid were aspirated from the pelvis, subphrenic space, and lesser sac. The retroperitoneal

* Presented at the Seventy-seventh Annual Meeting of the Louisiana State Medical Society, May 7, 1957, New Orleans.

fat of the entire right half of the abdomen was necrotic. The head of the pancreas was swollen and hard. The biliary ducts and the gall bladder were distended. The peritoneal reflection was incised along the entire length of the right colon to liberate the necrotic fat and the greasy fluid which escaped in large amounts. Drains were placed in the foramen of Winslow and the subphrenic spaces. A cholecystostomy provided decompression of the biliary tree and produced a few small stones. Her recovery was prompt; she was discharged from the hospital on the seventh postoperative day. To date no additional attacks have occurred.

Four similar cases have been treated by surgery. In three instances the preoperative diagnosis was cholecystitis. Decompression of the biliary tree by cholecystostomy and drainage of all collections of fluid was employed. Delirium tremens occurred on the third postoperative day in one patient and the pancreatic ferments resulted in fat necrosis and ulceration of the anterior abdominal wall in another; a pancreatic fistula drained for six months in a third patient. All are living and well and have had no recurrent attacks.

Case No. 2.—White male, twenty-one years of age admitted to the hospital with severe pain in the chest and back of twenty-four hours' duration. Extreme tenderness was present in the epigastrium. Marked elevation of the serum amylase prompted conservative treatment and the patient improved so that he was discharged on the sixth day when his serum amylase was normal. The symptoms recurred with increased severity so that four days later he was readmitted to the hospital. Marked elevation of the serum amylase recurred. Replacement therapy was administered and an exploratory laparotomy was done the following day. The entire pancreas was about twice normal size and uniformly hard. The largest collection of fluid was in the lesser sac with smaller amounts of fluid scattered elsewhere. Gall bladder was thickened and edematous but no stones were palpable. Cholecystectomy and exploration of common duct were done. Following transduodenal sphincterotomy, a T-tube was inserted into the duodenum through the common duct. A drain was placed in the lesser sac. The patient was discharged on the thirteenth postoperative day with the T-tube in place. It was removed three months later. He is still symptom free.

A comparable case was explored two months after conservative therapy and after weight loss of 100 pounds. Extensive fibrosis and necrosis were present in the pancreas with marked dilatation of the pancreatic and common ducts. Choledochoduodenostomy and pancreaticojejunostomy provided decompression. Fourteen months after the onset of his illness, the patient was able to return to work. His present weight is 148 pounds.

Case No. 3.—Fifty-four year old white male was seen ten days after the onset of his illness which began with extreme epigastric pain. The pain became so intense that the patient passed out on the following day. A diagnosis of acute pancreatitis prompted conservative treatment under which the patient became progressively worse. When first seen, he was irrational and the abdominal distention was extreme. As a last resort, exploration was done under local analgesia. Enormous quantities of greasy, bloody fluid gushed from the abdomen. Drains were inserted. His convalescence was stormy but he was discharged from the hospital on the eighteenth postoperative day. A pleural effusion developed and required aspiration. He is living and well today.

An additional parallel case was explored eighteen hours after admission to the hospital with the diagnosis of ruptured ulcer. Bloody fluid was oozing from the serosal surfaces in the region of the pancreas in alarming amounts so that two liters of blood were necessary to replace the amount lost. After two weeks, the patient recovered.

Case No. 4.—White female, age twenty-three, four months pregnant, was seen approximately forty-eight hours after the onset of pain in the back and in the abdomen. The entire right half of the abdomen was rigid but the tenderness was most marked over McBurney's point. The white count was 24,300 with 88 per cent polys. Exploration revealed a chronic appendix, a malrotated cecum and enlarged, hard and edematous pancreas. The gall bladder was distended and tense but no stones were present in the gall bladder. The lesser sac was drained and a cholecystostomy was done. The patient's improvement was prompt with discharge on the sixth postoperative day. She did not abort.

Another white female five and one-half months pregnant was treated conservatively because of an obscure diagnosis. In spite of intense therapy she aborted ten days after admission to the hospital and required surgery six days later because of a mass in the right upper abdominal quadrant. The mass proved to be an acute gall bladder which was secondary to an acute pancreatitis. The entire lesser sac was filled with fluid which was drained. Cholecystectomy was done. There were no stones in the gall bladder. Her period of hospitalization was nearly one month during most of which time she was acutely ill.

CONCLUSIONS

Prompt surgery has facilitated management of cases of acute pancreatitis by:

1. Decompression of biliary ducts.
2. Removal of toxic material.
3. Accurate estimation of the blood, fluid, and electrolyte losses.

THE VALUE OF DELAYED UROGRAMS *

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The number of intravenous pyelograms done in this country has increased tremendously in recent years. It is a valuable diagnostic procedure, not only for obvious urological conditions, but also in such problems as vague abdominal discomfort, abdominal tumors, suspected malignancy in some organ, and hypertension.

There is a risk in injecting any of the dyes used in excretory urograms. A few fatalities are reported each year. Because of this, as well as the expense involved, it behooves all of us to obtain the maximum amount of information possible each time we do intravenous pyelograms.

In my practice of urology, patients are often referred to me from doctors in neighboring towns who have already done intravenous pyelograms. Generally speaking, these pyelograms are of good quality. However, one serious mistake is commonly made; namely, failure to make delayed films, especially in patients with ureteral obstruction. This same mistake, I might add, is sometimes made also in larger hospitals. Dr. Thomas Latiolais, Jr. referred briefly to this point in his excellent paper on "Principles of Office Urology" [1] given before this assembly last year.

In many cases the KUB, five, ten, and twenty minute films will give all the desired information. However, each case must be individualized. There can be no set routine for doing intravenous pyelograms. I cannot stress this too strongly.

Delayed films are particularly important in patients with ureteral obstruction. The dye is slow in coming through because of the obstruction. In most instances, however, the dye will gradually fill the dilated calices, pelvis, and ureter down to the site of obstruction. This may require one hour, three hours, six hours or even twenty-four hours. These delayed films give very valuable information. They tell the site of obstruction and it is important to know whether the obstruction is in the upper or lower ureter. By pinpointing the site of obstruction they often tell us the cause of obstruction; this is particularly true with small ureteral stones which may be entirely overlooked on a plain KUB. Other causes such as ureteral strictures and extrinsic tumors compressing the ureter may be demonstrated on these delayed films.

When no dye is seen in one kidney on the early films, how do we know whether this represents an obstruction of the ureter or a nonfunctioning kidney? This question can nearly always be answered by looking for the presence or absence of a nephrogram. In ureteral obstruction the entire kidney usually becomes more opaque before any dye is seen in the calices or pelvis—this whiteness of the kidney is called a nephrogram and indicates function of this kidney. The nephrogram will usually be apparent within thirty to sixty minutes: of course, no nephrogram is seen in cases with non-functionng kidneys.

When the early films indicate ureteral obstruction, delayed films should be made every one to three hours until the ureter is well outlined down to the site of obstruction. If this obstruction is low, the patient's bladder should be emptied just before *each* film. Otherwise, the region of the lower ureter will be completely obscured by dye flling the bladder.

CASE REPORTS

The following brief case reports will demonstrate the important points of this paper:

Case No. 1. E. J., 49 year old white male with severe pain in left flank and grossly bloody urine. KUB revealed a small suspicious opacity in the region of the lower left ureter. Fifteen minute film showed no dye on left, normal function and drainage on right. One hour film showed marked nephrogram on left; and three hour film revealed dye in dilated left ureter down to suspicious opacity. This definitely proved the opacity to be

* Presented at the Seventy-seventh Annual Meeting of the Louisiana State Medical Society, May 7, 1957, New Orleans.

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a stone in the lower left ureter.

Case No. 2. R. L., 28 year old white male with severe left flank pain and microscopic hematuria. KUB showed a pea size opacity in the region of the left mid-ureter. Fifteen minute film showed nephrogram on left and normal drainage on right. Three hour film showed dilated left ureter filled with dye down to the ureteral stone.

Case No. 3 A. T., 52 year old white male with moderate pain in his right flank. This patient was a chronic stone former. KUB revealed a small opacity in the region of the lower right ureter and 3 opacities in the region of the left kidney. Five minute film showed dye just beginning to collect in the dilated right calices and normal drainage on the left. One hour film showed the dilated right pelvis and ureter filled with dye down to the stone.

Case No. 4 F. M., 45 year old white female with small stone blocking lower right ureter. This was proven on the two hour film by the dye coming down to the suspicious opacity.

Case No. 5 G. Q., 32 year old white female with small faint opacity in the region of the extreme lower left ureter. This was proven to be a stone in the ureter on the one hour film, but only after the bladder was emptied of the dye.

Case No. 6. J. D., 35 year old white female with unusual obstruction of lower left ureter as shown on five hour film. At surgery this was found to be an extrinsic tumor pressing on the ureter.

SUMMARY

Excretory urogram is a valuable diagnostic procedure. Because of the expense and the risk involved in injecting the dye, each one should be carefully done. There can be no set routine as each case must be individualized. In patients with ureteral obstruction, delayed films are particularly important. The presence of a nephrogram indicates function in that kidney. In patients with low ureteral obstruction the bladder should be emptied just before making each delayed film; otherwise the dye collected in the bladder will obscure the region of the lower ureter.

REFERENCE

1. Latiolais, T.: Principles of Office Urology, J. La. State M. Soc. 109:26, 1957.

DISCUSSION

Dr. C. H. Day (Lake Charles) Dr. Gahagan is to be commended for re-emphasizing the procedure of delayed urography. This is a diagnostic tool which has been in use for some time but about which little is to be found in the average text or journal. It may seem a little odd that the urologist should advocate a diagnostic procedure which might obviate the necessity of cystoscopy. However, retrograde pyelograms are not without certain dangers. It certainly behooves all of us to obtain the maximum diagnostic information on any patient with the least risk, pain and expense.

If I may, I should like to add just one or two points to what Dr. Gahagan has already said. One of the problems in any x-ray study of the abdominal contents is that of gas bubbles within the intestinal tract. A surprising number of times these gas bubbles may move out of the way on later films leaving a much clearer view of the particular organ or area to be studied. Secondly, I should like to mention an addition to this technique which will fairly frequently produce an excellent delayed urogram. Simply have the patient drink a glass of extremely cold water. About five minutes following the ingestion of the water take the delayed urogram. In many instances it will be found that there is prompt excellent filling of the kidney and ureter down to the point of obstruction. This filling takes place much too rapidly to be due to any diuresis produced by the water. It is speculated that it is mediated through the vagus nerve with release of ureteral spasm. May I also remind you that compression of the abdomen is not needed in delayed urograms. In a manner of speaking compression is already present in the form of obstruction of the ureter.

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THE TECHNIQUE OF PROCTOSCOPY *

EDWARD R. MORGAN, M. D.
Shreveport

Proctoscopy, or more exactly speaking, sigmoidoscopy, is a procedure with which every practitioner should become more familiar. Just as the digital examination of the anus and rectum has been emphasized, and justly so, the visual inspection of the lower bowel where indicated should receive equal emphasis. Three-fourths of the pathological processes involving the

* Presented at the Seventy-seventh Annual Meeting of the Louisiana State Medical Society, May 8, 1957, at New Orleans.

colon lie within reach of the 25 cm. sigmoidoscope. By this simple procedure, therefore, a method is at hand for making exact diagnosis in a majority of cases involving the large bowel.

The passage of the sigmoidoscope is only a portion of the technique of proctoscopy. Adequate preparation of the bowel, a good history, the proper selection of instruments, and thoroughness in their use, each in its turn is required for a successful examination.

PREPARATION OF THE PATIENT

Although some physicians carry out their examinations without prior cleansing of the bowel, it is felt generally that preparation of some sort should be done before proctoscopy in order to save time and to enhance the probability of a good examination. Preparation may be made by the patient at home where warm tap water enemas can be taken with the subject lying on his left side. These may be repeated until returns are clear. The use of strong soap-suds enemas, peroxide, or other irritating substances is to be deprecated for they cause a proctitis which may vary from mild to severe, thus obscuring some pre-existing condition. An alternative method of preparation is the use of commercially prepared disposable enemas which may be administered in the physician's office. Examples of these are the Fleets, Pharmaseal, Clyserol preparations. These are highly acceptable to the patients, require very little time to administer, and cleanse the bowel most adequately. The only objection to prepared enemas is that the production of mucus is sometimes considerable. Since this is easily aspirated, the inconvenience is minimal.

HISTORY

One should make inquiries of every patient concerning bleeding, abscess formation, protrusion, itching, and pain. The relationships of these symptoms to one another, their duration, and precipitating causes should be discerned. A history of previous bowel and rectal surgery and bowel habits, past and present, also contributes to an understanding of the patient's situation. From the history a presumptive opinion, and this only, can be made. Not until the examination is complete should the patient be advised concerning any conclusions.

INSTRUMENTS

There are many good diagnostic sigmoidoscopes on the market today. Each of these has its enthusiastic advocates. Whether an instrument is distally or proximally lighted is of no real significance. Of more importance is the familiarity of the endoscopist with the instrument of his choice. I prefer the distally lighted Buie sigmoidoscope for several reasons: The light source is close to the area to be examined, and yet it is protected from soilage by the bowel contents. The instrument is simple in design, easy to clean, and with normal use is practically indestructible. It serves equally well to examine both children and adults. Many odd-sized scopes are available for use in particular circumstances. These range from an instrument with a lumen the size of a cystoscope for bypassing strictures to extra-length scopes of 35 and 40 cm. for reaching high-lying lesions.

Anoscopes also vary greatly in size and design, and great liberty may be taken in choosing a type to suit one's liking. A set of graduated Hirschman anoscopes serves admirably to examine most patients.

However, the one instrument which every practitioner should have in his office, regardless of the type preferred, is the 25 cm. diagnostic sigmoidoscope.

POSITIONS OF THE PATIENT

Through the years many positions have been used for sigmoidoscopy. Withstanding the test of time is the left lateral Sims' position. This position is particularly well adapted when the subject to be examined is confined to bed, although it is well suited to office use also. In using the Sims' position it is well to make sure that the patient is well over to the edge of the bed with the buttocks extending beyond the edge at least two inches. The left arm is allowed to fall over the edge

behind the patient, and the right leg is drawn well up. In this manner the abdomen becomes dependent, to a slight extent facilitating passage of the sigmoidoscope.

The knee-chest position is the second commonly used posture for endoscopic evaluation of the large bowel. Here the abdomen falls free when the head and shoulders are placed on the table. The objections to this position are that the patient has too wide a latitude of movement and that the examiner must assume and maintain an awkward position in order to examine the patient.

The third and most convenient position in which to perform a sigmoidoscopic examination is to place the patient in the jack-knife attitude. Many of the newer tables found in doctors' offices are constructed so that they break in the middle allowing the head to be lowered and the buttocks elevated. Most newer tables are also adjustable to the height of the physician so that he may perform his examination in relative comfort. Where possible a support should be placed beneath the pelvis to allow the abdomen to be dependent and unsupported. This adds greater mobility to the bowel and greatly facilitates the passage of the scope. Of the three positions the latter is much to be preferred.

PASSAGE OF THE SIGMOIDOSCOPE

Before the insertion of the sigmoidoscope an adequate digital examination should always be performed. Many lesions are best detected by the sense of touch. Such entities as submucosal nodules, extrarectal masses, and induration of fistulous tracts would fall into this group. A routine by which the entire circumference is examined is mandatory. Beginning in the hollow of the sacrum, the index finger is swept around the full 360 degrees of the lumen. Bimanual palpation is used when indicated to evaluate questionable areas.

Only after an adequate digital examination has been performed is it permissible to insert the sigmoidoscope. At this time, it is well to inform the subject that with the passage of the scope through the anal canal he will experience a sensation as if he wanted to have a bowel movement. Reassure him that everything is well and that he will not soil himself. As soon as the tip of the instrument has passed the sphincter, the obturator should be withdrawn. Further advance of the scope should always be made under direct vision.

Passage of the sigmoidoscope to the upper portion of the rectum usually causes little difficulty. Here, however, one usually encounters some angulation. At this point it is usually wise to reassure the patient again by telling him that he may feel some abdominal cramping. Request that he leave his abdominal muscles relaxed. This relaxation will cause less discomfort while the more proximal portion of the bowel is being inspected.

If it appears during the examination that the scope has entered a blind pouch or dead end, the instrument should be withdrawn until a fold of bowel appears. Advance the instrument again to a point just beyond the fold and then angle the sigmoidoscope in the direction from which the fold appeared. The lumen of the bowel thus will be found to lie in that direction. A gentle repetition of this step will usually result in the passage of the scope to its full length.

While inserting the sigmoidoscope, minimal use of the bellows is recommended. Only when withdrawing the scope should one resort to the use of the bellows to any great extent. It is while the scope is being withdrawn that the bowel is examined for the presence of pathology most closely.

Extreme care should be exercised when areas of fixation or narrowness are encountered. It is better to discontinue an examination than to force a sigmoidoscope heroically through an abnormal segment of bowel.

Following removal of the sigmoidoscope, anoscopes of appropriate size should be inserted for a closer inspection of the lower portion of the rectum and anal canal. At this time such conditions as affect the anal canal such as hemorrhoids,

prolapse, fistulae and fissures are evaluated. When the patient complains of extreme pain, it is well to try using topical anesthetics in an attempt to complete the examination. Failing in this an examination under anesthesia should be performed at which time definitive surgery may be carried out.

I should like to reiterate the importance of the sigmoidoscopic examination. Annually 35,000 deaths result from malignancy of the colon. Many of these deaths could be prevented by a more extensive utilization of sigmoidoscopy in persons of the older age groups.

Effective utilization of sigmoidoscopy implies a thorough knowledge of its techniques.

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OUTBREAK OF GROUP A, B-HEMOLYTIC STREPTOCOCCAL PHARYNGITIS OBSERVED IN NEW ORLEANS AREA

WILLIAM J. MOGABGAB, M. D.
WILLIAM PELON, Ph. D.
New Orleans

An outbreak of Group A, B-hemolytic streptococcal pharyngitis has recently been observed in the New Orleans area. Two additional problems have been encountered that warrant considerable concern. First, all strains have been Type 12 and, second, all except two have been resistant to the tetracycline drugs.

The initial observation was made late in December 1957, in a family of four children, aged 3 to 7 years. The oldest child acquired a febrile upper respiratory illness during which throat cultures remained strongly positive for B-hemolytic streptococci despite full doses of tetracycline for one week. Subsequent spread occurred to other members with fever, but with little sign of acute pharyngitis. All responded to oral penicillin V.

Throat culture survey of the school attended by two of these children was done two weeks later. Half of the total population of 250 was cultured and 35 per cent contained B-hemolytic streptococci. Most cultures were strongly positive and practically all were Group A. Typing and sensitivity studies were done on sufficient strains to warrant the assumption of uniformity, which was also supported by similar colonial characteristics. All, including the strains from the family outbreak, were Type 12, and all except two were resistant to all tetracycline drugs but sensitive to penicillin and erthromycin.

It is not yet known how widespread this organism might be in the New Orleans area, however, two children attending another school were also found to harbor Group A, Type 12 B-hemolytic streptococci.

Resistance to the tetracycline drugs has not been a recognized problem with B-hemolytic streptococci. In fact, the tetracyclines have been listed as alternatives to penicillin and erythromycin despite the fact that streptococci are not eradicated nor rheumatic fever prevented with nearly the degree of effectiveness of the latter antibiotics. One could not expect any therapeutic effect from the tetracyclines in view of the degree of resistance found with these organisms and, in fact, this was the situation in the child treated with tetracycline.

Whether this organism will prove to be as nephritogenic as many of the Type 12 strains found in the United States has not been determined. Nevertheless, this should indicate the need for concern especially since one case of acute glomerulonephritis occurred in a pupil prior to the time of the school survey.

The following measures would seem to be warranted in the New Orleans area:

(1) Use of throat cultures in management of all upper respiratory illnesses.

(2) Treatment of B-hemolytic streptococcal infections with penicillin or erythromycin for 10 days.

(3) Repetition of cultures after therapy and urinalysis a month after illness as well as observations for rheumatic fever.

(4) Sufficient culture surveys to determine the extent of all B-hemolytic streptococcal infection and, especially, strains like those described herein.

(5) Consideration of mass antibiotic prophylaxis in groups in which a high incidence of infection is found.

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POLIO IMMUNIZATION MUST CONTINUE

One year ago last month the A.M.A. gave the leadership, guidance, and direction to a polio immunization campaign to be undertaken by the several state organizations. The aim was to immunize everyone under 40. The collective efforts of the doctors of the nation were effective in accomplishing the greatest mass inoculation in history. The results amply justified the efforts and furnish encouragement to us in attempting to give the public even further protection.

It is apparent that the polio campaign must be a continuing effort. Immunization of the mass protects the individual inoculated, but also provides relative protection to the one who has not been. The benefits of immunization can be presented with confidence. The five year average, 1952 through 1956, was approximately 35,000 cases. In 1955, there were 29,270. In 1956, there were 15,403. In 1957, there were 5,894, and this was the year of the mass immunization campaign. The total cases of last year (1957) were only 38 per cent of the year before, and the paralytic cases only 32 per cent. It is obvious that some 10,000 persons, mostly children, have been saved from paralysis by the year's effort. Approximately 17 per cent of the patients with nonparalytic polio, in 1957, had received three or more injections of the vaccine. In persons under 5 years of age the attack rate for paralytic disease was twice that of the nonparalytic. In the age group 5 to 9, the nonparalytic rate was twice that for the paralytic cases.

In the areas where the campaign was intense the rate of decline between the two years was sharp. In Massachusetts, the drop was 98 per cent: in Minnesota, 96 per cent; in Chicago, from 1111 to 21, a drop of 98 per cent. However, in Louisiana, the situation is not as favorable. The incidence here puts us in the top 10 in 1956, and again in 1957, with 625 and 181 cases, respectively. The figures for New Orleans were 90 and 22. This is a drop of only about 71 per cent in the state and 74 per cent in the city where we would have wished for much greater.

The reasons for this undesirable incidence may be several. The relative scarcity of vaccine contributed to this partial failure and kept us in the top ten of the states. The polio season starts early with us. Last year at the time when inoculation should have been in process to meet the spring rise of incidence and exposure, the vaccine was not obtainable. Twenty-six million doses in storage over the nation at the start of the campaign, on January 26, 1957, had disappeared within a

month. This year we have a chance to do better. There is plenty of vaccine. The A.M.A. is distributing three sequential reminder cards to physicians with the suggestion that these cards go out to each patient under 40. The Polio Foundation is distributing cards to prospective patients in the door to door "Mothers' March on Polio." Patients under 40 can again be told of the startling drop in incidence and in paralysis following three or more injections. To move Louisiana out of the top ten in incidence of the disease would be quite fitting for the state in which the first public health department was formed and which occupies the first position in too many situations in which we would prefer to be last.

Making the polio campaign a continuing and successful effort is another instance of how our physicians can serve the public and promote the public health under the leadership of organized medicine without the interference of government or bureaucracy.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

ORGANIZATION SECTION REPORT OF JOINT COMMISSION ON ACCREDITATION OF HOSPITALS *

The December, 1957, bulletin of the Joint Commission on Accreditation of Hospitals (660 N. Rush St., Chicago; Kenneth B. Babcock, M. D., director) is reproduced here for the information it contains that will be of interest to many physicians.—Ed.

In keeping with its aim of assisting hospitals to meet and exceed minimal standards of high quality patient care in hospitals, this issue of the bulletin is devoted to three important departments in hospitals.

Pharmacy or Drug Room

The Standards of the Joint Commission on Accreditation of Hospitals are quoted below.

a. There shall be a pharmacy directed by a registered pharmacist or drug room under competent supervision.

b. Facilities shall be provided for the storage, safeguarding, preparation, and dispensing of drugs.

c. Personnel competent in their respective duties shall be provided in keeping with the size and activity of the department.

d. Records shall be kept of the transactions of the pharmacy, and correlated with hospital records where indicated. Such special records shall be kept as are required by law.

e. Drugs dispensed shall meet the standards established by the United States Pharmacopeia, National Formulary, New and Nonofficial Remedies, British Pharmacopeia, or Canadian Formulary.

f. There shall be an automatic stop-order on dangerous drugs.

Of the above, 'a' and 'f' are sometimes not well understood. The hospital which cannot obtain or afford a hospital pharmacist should try and obtain the services of one on a part-time or consultative basis. If the hospital pharmacist of another hospital is not obtainable in this capacity, then the services of a local pharmacist should be utilized wherever possible. With his help the correct procedures, rules and regulations for this department should be drawn up.

The requirement of an automatic stop-order on dangerous drugs is misunderstood frequently by hospitals and physicians. The Joint Commission on Accreditation of Hospitals has no right to tell physicians what kind and how much medicine they should give to their patients, and does not do so. The Commission does desire that drugs, especially dangerous drugs, be given properly with reasonable medical staff controls. The Commission is asking that hospital medical staffs establish a written policy that all dangerous medications, not specifically prescribed as to time and number of doses, be automatically stopped after a reasonable time limit set by the staff. It is a protection against indiscriminate, indefinite prescribing of an open-ended type which can result in harm to the patient, physician or hospital. It especially includes such orders as p.r.n., 'as necessary,' etc. The following classifications are ordinarily thought of as dangerous drugs: narcotics, sedatives, anticoagulants and antibiotics.

Hospital Pharmacy and Therapeutics Committee

This committee is one tool for maintaining medical staff self-government. It is responsible to the

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medical staff as a whole and its recommendations are subject to medical staff approval. It is not a mandatory committee of the Joint Commission on Accreditation of Hospitals, but is strongly recommended for all hospitals. Composed of physicians and the pharmacist, it serves as the organization line of communication or liaison between the medical staff and the Pharmacy Department. This committee assists in the formulation of broad professional policies regarding the evaluation, selection, procurement, distribution, use, safety procedures and other matters relating to drugs in hospitals. The purpose and function of this committee are:

a. To serve as an advisory group to the hospital medical staff and the hospital pharmacist on matters pertaining to the choice of drugs.

b. To add to and to delete from the list of drugs accepted for use in the hospital.

c. To prevent unnecessary duplication in the stock of the same basic drug and its preparation.

d. To make recommendations concerning drugs to be stocked on the nursing unit floors and by other services.

e. To evaluate clinical data concerning new drugs or preparations requested for use in the hospital.

f. To develop a formulary or drug list of accepted drugs for use in the hospital.

A strong hospital Pharmacy and Therapeutics Committee, meeting at least twice yearly, though not a requirement of the Joint Commission is considered a very important educational and advisory tool towards the improvement of patient care in hospitals and is highly recommended.

Dietary Department

In every instance specific local laws and ordinances should be obeyed. The Standards of the Commission in relation to this department are as follows:

a. There shall be an organized department directed by qualified personnel and integrated with other departments in the hospital.

b. Facilities shall be provided which meet the requirement of the local sanitary code for the storage, preparation, and distribution of food for the general dietary needs of the hospital. These shall include facilities for the preparation of special diets.

c. There shall be a qualified dietitian on full-time or on a consultative basis and in addition, administrative and technical personnel competent in their respective duties.

d. There shall be a systematic record of diets, correlated with the medical records.

e. Departmental and interdepartmental conferences shall be held periodically.

It is the opinion of the Joint Commission that this department should be under the supervision of a qualified dietitian (preferably A. D. A. registered), on a full-time basis if possible or in smaller hospitals on a consultative part-time basis. There should be facilities for preparing therapeutic diets, although this does not necessarily require a special diet kitchen. In visiting a hospital, the surveyor evaluates this department on the basis of cleanliness, proper and adequate refrigeration, dish-washing and garbage disposal facilities, safe practices in the preparation and transportation of food, and the controls established to insure proper diet therapy. The commonest faults reported by surveyors are listed.

1. Lack of thermometers and temperature controls in large refrigerators.

2. Lack of temperature and thermostatic controls on dishwashing apparatus and even when present, not utilized. Hand drying of dishes.

3. Poor and unsanitary garbage control and disposal.

4. Storage of uncovered food in the same refrigerator with drugs.

5. Failure to clean ice storage bins. This is quite frequently found.

6. Presence of unimaginative, unpalatable, repetitious, stereotyped special diets.

7. Poor housekeeping and sanitation in the department.

8. Uninstructed personnel in the handling, presentation and disposal of food.

9. Poor transportation of food, resulting in cold, unpalatable food.

Emergency Room

As hospitals have become more and more the focal point of medical care in a community, the services rendered by this department have gained importance. The Standards state that if a hospital maintains this service, and all hospitals except very specialized ones should, the following is necessary:

a. There shall be a well organized department directed by qualified personnel and integrated with other departments of the hospital.

b. Facilities shall be provided to assure prompt diagnosis and emergency treatment.

c. There shall be adequate medical and nursing personnel available at all times.

d. Adequate medical records on every patient must be kept.

e. There shall be a written plan for the care of mass casualties and this plan should be coordinated with the in-patient and out-patient services of the hospital.

In several hospitals surveyed it has been noted that nurses are treating and prescribing for patients in the emergency room. No physician sees the patient. This is absolutely wrong. The hospital is guilty of wrongdoing by allowing a nonphysician to practice medicine. Serious legal consequences could result.

Many hospitals are found with very poor emer-

gency room records. Emergency room cases frequently become court or compensation cases. The good emergency room record should contain proper identification, short history of the disease or injury, physical findings, laboratory and x-ray reports if performed, record of treatment, prognosis and disposition of the case. This record must be authenticated by the physician rendering the service.

A plan, rehearsed at least twice a year, for the reception, care, and evaluation of mass casualties is mandatory for all hospitals. It has been a requirement of the Joint Commission for two years. An unprepared hospital, in case of a community catastrophe, fails itself and fails its community. Hospitals not having a definite written rehearsed plan are strongly criticized by the Joint Commission.

THE BRAIN AND OXYGEN

The brain is especially dependent on an uninterrupted supply of oxygen to maintain not only normal function, but organic existence. The adult human brain normally uses about 45 ml. of oxygen per minute. If the supply is cut down by 10 per cent, one begins to get the first mental signs, a little difficulty in concentrating thoughts. If the oxygen supply is cut down by 20 per cent, there results emotional instability and confusion; one might say it is equivalent in effect to three or four cocktails. If the oxygen supply is cut down by 40 per cent, coma ensues. If the blood supply is completely cut off, as by a cuff around the neck, there is complete unconsciousness in a few seconds, and, to judge from observations in cases of asystole, after four or five minutes the brain suffers irreversible damage.—D. D. Van Slyke, M. D., The Role of Oxygen and Carbon Dioxide in Cardiovascular Physiology and Pathology, *Bulletin of St. Francis Hospital and Sanatorium*, January, 1957.

USE OF POOLED PLASMA AS A MEDICOLEGAL HAZARD *

It has been estimated that the incidence of homologous serum jaundice following the administration of pool blood plasma is from 5 to 20%.[1] It is true that the deaths resulting from such disease are few. It is also true that recently adopted storage plans, whereby the pooled plasma is not used until a lapse of six months, with the possibility that the virus may die in the meantime, may have reduced this incidence. The fact that from 5 to 20 patients out of every 100 transfused with pooled plasma get the disease, however, strongly emphasizes one of the risks that must often be taken in order to save a life. Despite the fact that life has been saved, suits have been brought to recover damages when homologous serum jaundice has resulted from a badly needed and properly administered transfusion.

One suit, brought on behalf of a patient who had died from the disease, named the state of New York as the defendant.[2] The plasma used had originally been procured for the Army and Navy by the American Red Cross. Upon the cessation of hostilities, the plasma was declared surplus by the War Department and was distributed to health agencies in the 48 states for allocation to hospitals and licensed physicians. The plasma administered in this case had been received from the National Red Cross by the Westchester County, New York, Red Cross Chapter, which stored it. Later it was delivered in its original package to the Northern Westchester Hospital in response to its request to the Westchester County health commissioner, who had been designated by the state commissioner of health as district laboratory supply station custodian. It was the plaintiff's contention that the state, having knowledge of the incidence of homologous serum jaundice due to the use of pooled plasma, was guilty of negligence in the distribution of the Red Cross blood plasma. The court held that the state was a mere distributing agent and, in the absence of any negligence on its part, could not be held responsible for injuries following use of the plasma. Furthermore, the court pointed out that it was the physician, in the exercise of his professional judgment, who decided whether the plasma should or should not be used. The plaintiff had not contended that the physician was in any way liable and the court did not suggest that possibility in its opinion. Confining itself to the strict issue presented in the pleadings, the court held only that the state was not liable for damages to the plaintiff.

The next case involved blood rather than plasma. It was an attempt to collect damages from the hospital which had furnished the blood and in which the transfusion had been administered.[3] The plaintiff (patient) contended that the hospital had sold her the blood, knowing the purpose for which it was to be used. She argued that the sale was subject to an implied warranty that the blood was "fit" for such intended purpose, was of "merchantable quality," was pure and harmless, and contained no injurious substances, agents, viruses, germs, or impurities. The Court of Appeals of New York held that the blood had not been sold to the patient but was a part of the total medical service rendered. Since there was no sale, there could be no warranties of sale, and the defendant hospital was held not liable in damages when the patient acquired homologous serum jaundice following the transfusion.

The third case involved a construction of the Tennessee Food, Drug and Cosmetic Act.[4] That

* Reprinted from J.A.M.A. 166:261 (Jan. 18) 1958.

act prohibits the sale or delivery of an adulterated drug and provides that a drug is adulterated "if it consists in whole or in part of any filthy, putrid, or decomposed substance." The plaintiff contended that the virus of serum jaundice contained in pooled blood plasma was a "filthy" substance and that the plasma was therefore adulterated. The United States Court of Appeals held that a virus which cannot be seen even with the most powerful microscope, which cannot be described, and the presence of which cannot be known at all except through its ultimate result, is not a filthy substance within the meaning of the statute. It held, therefore, that the manufacturer of the plasma is not liable in damages to the patient who ultimately gets homologous serum jaundice following its administration.

Thus these three decisions have held that the manufacturer that processes the plasma, the agency that distributes the packaged plasma without in any way changing the contents of the package, and the hospital that actually supplies blood for use in the sickroom or operating room are not legally liable in damages to a patient who subsequently acquires serum jaundice.

Underlying the reasoning in all of these cases is the realization of the fact that, despite every effort to screen donors, there is a possibility that the jaundice virus may be present in pooled plasma; if the virus is present, it cannot be discovered by microscope examination or by any other test known to medical science; it cannot be removed or destroyed by any known method which does not also destroy the utility of the plasma. Doctors are aware of this situation but frankly point out that, though medically indicated, a calculated risk is involved whenever they order the use of pooled plasma.[4] They take such a risk because they prefer a live patient with hepatitis to a patient who dies of shock before his blood can be typed and a sufficient quantity of whole blood obtained. If a physician is involved as a defendant in a case of this type in the future it must logically be assumed on the basis of cited precedents that the courts will say that the patient must assume the calculated risk himself in the expectation that his life may be preserved.

In the meantime, however, physicians will be wise to take every possible precaution to protect themselves in the event that a patient decides to sue. If the situation permits, the patient or his relation or guardian should be fully advised as to the need for the transfusion and the possible risks that might follow it, specifically homologous serum jaundice. This should be of great value in establishing, if a court should decide it to be necessary, an intent on the part of the patient to assume the risks involved.

REFERENCES

1. Allen, J. G.; Emerson, M. D.; Barron, E. S. G.: and Sykes, C.: Pooled Plasma with Little or No Risk of Homologous Serum Jaundice, J.A.M.A. 154:103-107 (Jan. 9) 1954. Pooled Plasma and Jaundice Editorial, ibid. 154: 146-147 (Jan. 9) 1954.
2. Parker v. State, 105 N.Y.S. (2) 735 (1951).
3. Perlmutter v. Beth David Hospital, 123 N.E. (2) 79 (1955).
4. Merck and Company v. Kidd, 242 F (2) 592 (1957).

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next scheduled examinations (Part II), oral and clinical for all candidates will be conducted at the Edgewater Beach Hotel, Chicago, Illinois, by the entire Board from May 7 through 17, 1958. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations as soon as possible.

For further information contact Robert L. Faulkner, M. D., 2105 Adelbert Road, Cleveland 6, Ohio.

POSTGRADUATE CONFERENCE

The Temple Division of the University of Texas Postgraduate School of Medicine announces its SIXTH MEDICAL AND SURGICAL CONFERENCE emphasizing **Cardiac, Pulmonary, and Vascular Diseases** to be held March 3, 4, 5, 1958. The program sponsored by Scott, Sherwood and Brindley Foundation, will be presented in Temple by members of the Staff of Scott and White Clinic. Registration forms are available from the office of the Assistant Dean, University of Texas Postgraduate School of Medicine, The Temple Division, Temple, Texas.

SOCIAL SECURITY FOOTNOTES

The government, while slow to acknowledge anything wrong with the Social Security System, underestimated the demand for benefits. Women who could obtain benefits at 62, 63, and 64 decided to do so even if the payments were less than they would have been at 65. Farmers suddenly turned out to be older than expected. Some began to pay social security taxes on reported income of $4200 which exceeded their income in prior years. Then they applied for benefits after paying taxes for six quarters. Many people who had retired and were well beyond 65 years of age, dug up jobs for themselves and paid social security taxes for 18 months, thereby qualifying for benefits of from $30 to $108.50 monthly for life. Social security experts in making their cost projections underestimated the ingeniousness of the American people when Federal give-aways are as widely advertised as are social security benefits.

There is not an unlimited number of ways for Social Security to expand. Medical care is one of the few areas not covered by "social insurance," and the present framework of the Social Security Act is adequate to cover socialized medicine by means of a few amendments. The Disability Insurance "Trust" Fund could be changed into a Health Insurance "Trust" Fund by the stroke of a pen. Taxes could be increased. A new title could be added to the law and the private practice of medicine could be virtually destroyed.

In one way or another, on one excuse or another, social security tax payments are being boosted every year or two instead of at five-year intervals as originally planned. In 1954, the base was raised from $3600 to $4200. In 1956, the tax rate was increased. Now, Rep. Kean wants to raise the base rate from $4200 to $4800 beginning in 1959. Then in 1960, the tax rate is scheduled to increase ½ percent for both employee and employer, and ¾ percent for the self-employed. There is no way of knowing just how expensive social security "insurance" is actually going to be.

Social security has been changed many times in the 22 years since the original law was enacted. The size and variety of benefits, the tax rates, the tax base, coverage—all have been radically changed. There is no reason to believe that another 22 years will not see just as radical changes.

The "soundness" of social security depends on compulsion, high employment, and no wars.

ARALEN FOUND EFFECTIVE IN RHEUMATOID ARTHRITIS

The antimalarial Aralen (chloroquine) produced "significant" improvement in a controlled study of 66 cases of active rheumatoid arthritis, and should be studied further to determine its long-term value, according to Dr. A Freedman.

Writing in **Annals of Rheumatic Diseases** (15: 251, 1956), Dr. A. Freedman reports that no changes were observed in hemoglobin and erythrocyte sedimentation rates in the series given Aralen and the control group given a placebo. He attributes this to the shortness of the treatment period of 16 weeks, noting that the control group improved only slightly while the Aralen cases made a significant improvement.

Fifty patients were treated with Aralen (Winthrop) in a subsequent study, of whom 43 became "really well," Dr. Freedman states. Despite having little or no need for aspirin, there was no joint stiffness or evidence of joint inflammation.

No toxic effects of any significance were observed in the 50 patients who were treated with 300 mg. of Aralen sulphate daily for two years, the author says.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

The Woman's Auxiliary to the Orleans Parish Medical Society is planning in a "big way" for the entertainment of the wives of the visiting doctors who are coming to New Orleans to attend the Twenty-first Annual Meeting of the New Orleans Graduate Medical Assembly which is to be held March 3-6, 1958, with headquarters at the Roosevelt Hotel.

Mrs. Eugene H. Countiss, Auxiliary president, has appointed Mrs. Albert William Habeeb, General Chairman. Mrs. Habeeb at this date has her plans in the blue print stage and is working diligently to have an unsurpassed program for our visitors.

Mrs. Habeeb has appointed the following committee chairmen to assist her:—

Registration—Mrs. William J. Rein
Information—Mrs. J. Arthur White
Publicity—Mrs. Branch J. Aymond
Transportation—Mrs. William S. Neal
Tour of City—Mrs. V. Medd Henington
Tea—Mrs. J. Morgan Lyons
Mrs. Milton McCall
Mrs. Esmond Fatter
Style Show—Mrs. Martin O. Miller
Hospitality Room—Mrs. George Taquino, Sr.

For the visiting ladies there will be a registration and information desk set up in the lobby of the Roosevelt Hotel staffed by auxiliary members and will function from 8:00 a.m. to 4:00 p.m., on Monday and Tuesday, March 3rd and 4th, and from 8:00 a.m. to 2:00 p.m., on Wednesday and Thursday, March 5th and 6th.

Entertainment for the visitors will stress the hospitality and fun loving atmosphere which prevails in New Orleans. A hospitality room will be open for coffee and "conversation" on Monday and Tuesday mornings from 8:30 a.m. to 11:30 a.m.

Tuesday, March 3, there will be a tour by bus of the City of New Orleans; Wednesday, March 5, a style show of fabulous fashions and tea party at the Orleans Club; Thursday, March 6, an interesting tour of the City of New Orleans by bus. Your doctors are welcomed on the tour and reservations can be made at the Registration Desk.

Mrs. Branch J. Aymond,
Publicity Chairman.

The Woman's Auxiliary to the Orleans Parish Medical Society entertained with a program tea following the monthly meeting on Wednesday, January 8th, 2:30 P.M., at the Orleans Club.

Guests of honor at the party were the officers of the Woman's Auxiliary to the New Orleans Dental Society, Mmes. B. C. Gore, Virgil Robinson, John Stafford, Fernard Tiblier and J. Russell Bond.

Dr. Charles B. Odom, President of Orleans Parish Medical Society, addressed the meeting bringing greetings from the Society.

Mrs. Charles Farris, Jr., program chairman introduced Marthie Bouche, "The Mad Hatter," whose topic was "Have you gotten your Spring hat?". It was a most interesting program and the "hats were mad too".

Assisting in receiving with the President, Mrs. Eugene H. Countiss, were the wives of the officers of Orleans Parish Medical Society Mmes. Charles B. Odom, William C. Rivenbark, John J. Archinard, Spencer B. McNair, J. T. Brierre, Felix A. Planche, Oscar Blitz and George H. Hauser.

Mrs. Fred O. Brumfield, chairman of hostesses, was assisted in the dining room by Mmes. Walter Diaz, Joseph S. D'Antoni, Harold Cummins, Jr., Benard D. Danton, Jr., Vincent Culotta, Julius T. Davis, Joseph F. Craven, Carl J. Decharry, Earl C. Smith, and Arthur C. Davidson.

Alternating at the tea and coffee services were Mmes. James Treadway, Ben Parker, John C. Dubret and Walter F. Becker.

Mrs. Branch J. Aymond,
Publicity Chairman.

BOOK REVIEWS

J.A.M.A. Queries and Minor Notes published for the American Medical Association, Saint Louis, Missouri, the C. V. Mosby Company, 1956, pp. 334, Price $5.50.

The section on Queries and Minor Notes as published in the *Journal of the American Medical Association* has long been of special interest to practicing physicians. Recognizing this fact, the present volume republishes the contents of this section for the twelve months ending June, 1955. The arrangement follows the classified order of the "Standard Nomenclature of Disease" so that material on the Respiratory or Cardiovascular system is together and a table of contents under each body system lists alphabetically the conditions discussed. The book will be a worthwhile volume for quick reference but its use would have been made easier if an index had been included.

MARY LOUISE MARSHALL

PUBLICATIONS RECEIVED

Philosophical Library, Inc., N. Y.: Cortisone Therapy, by J. H. Glyn, M. D.

Charles C Thomas, Publisher, Springfield, Ill.: Clinical and Immunologic Aspects of Fungous Diseases, by J. Walter Wilson, M. D.; Urine and the Urinary Sediment, by Richard W. Lippman, M. D. (2nd Edit.); Principles of Ophthalmoscopy, by John K. Erbaugh, M. D.; The Diagnosis and Treatment of Infections, by D. Geraint James, M. D.; The Human Ear Canal, by Eldon T. Perry, M. D., edited by Arthur C. Curtis, M. D.; Fundamentals of Electrocardiography and Vectorcardiography, by Lawrence E. Lamb, M. D.; Pre-Employment Disability Evaluation, by William A. Kellogg, M. D.

Williams & Wilkins Co., Balt.: The Relation of Psychiatry to Pharmacology, by Abraham Wikler, M. D.



Nilevar®

stimulates protein synthesis, corrects negative nitrogen balance

Increased nitrogen loss, with resulting negative nitrogen balance, occurs in infection, trauma, major surgery, extensive burns, certain endocrine disorders and starvation and emaciation syndromes. The intrinsic control of protein metabolism is lost and a protein "catabolic state" occurs. A patient requiring more than ten days of bedrest usually has had sufficient metabolic insult[1] to precipitate such a "catabolic" phase.

Nilevar (brand of norethandrolone) has been used in patients with varied conditions including hyperthyroidism, poliomyelitis, aplastic anemia, glomerulonephritis, anorexia nervosa and postoperative protein depletion. The patients gained weight and felt better. It was concluded[2] that "the drug certainly caused a reversal of rather recalcitrant or progressive catabolic patterns of disease."

Nilevar is unique among anabolic steroids in that androgenic side action is minimal or absent.

The suggested adult dosage is three to five tablets (30 to 50 mg.) daily. For children 1.5 mg. per kilogram of weight is recommended.

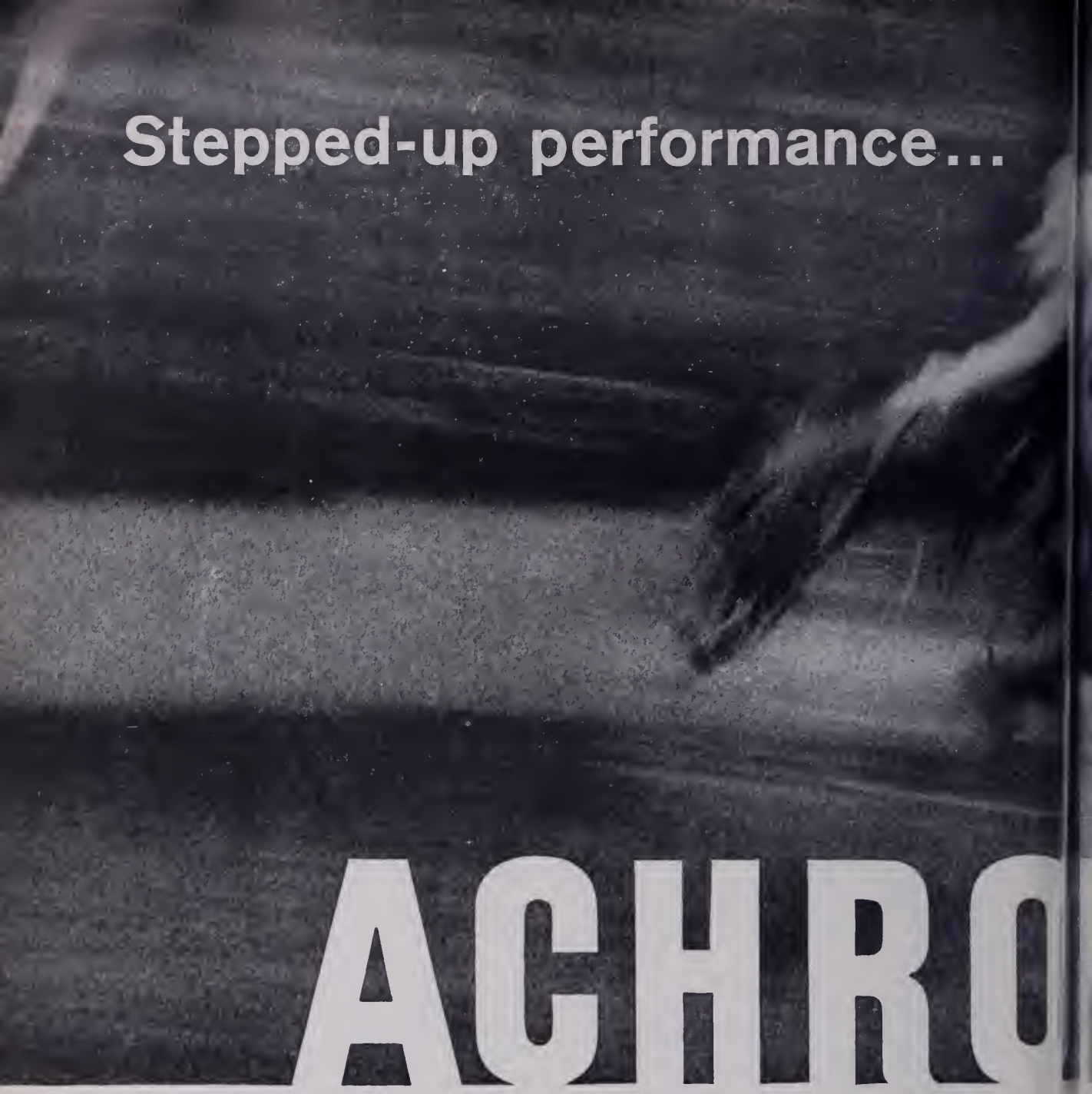
G. D. Searle & Co., Chicago 80, Illinois.
Research in the Service of Medicine.

---

1. Axelrod, A. E.; Beaton, J. R.; Cannon, P. R., and others: Symposium on Protein Metabolism, New York, The National Vitamin Foundation, Incorporated, (March) 1954, p. 100.

2. Proceedings of a Conference on the Clinical Use of Anabolic Agents, Chicago, Illinois, G. D. Searle & Co., April 9, 1956, pp. 32-35.

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New rapid-acting ACHROMYCIN V Capsules offer mor
patients consistently high blood levels—at no sacrific
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The pure, unaltered crystalline tetracycline HCl molecu
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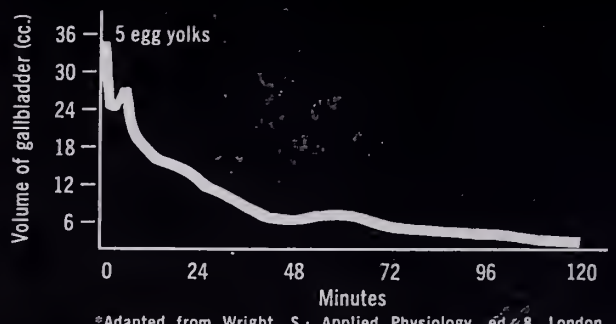
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*Adapted from Wright, S.: Applied Physiology, ed. 8, London, Oxford University Press, 1947, p. 734.

What's wrong with the term "emptying of the gallbladder"?

The gallbladder discharges bile by fractional evacuation. It is not emptied completely at any one time even following a fatty meal.

Source—Lichtman, S. S.: Diseases of the Liver, Gallbladder and Bile Ducts, ed. 3, Philadelphia, Lea & Febiger, 1953, vol. 2, p. 1177.

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increases bile flow and gallbladder function—combats bile stasis and concentration... helps thin gallbladder contents.

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Progress has been made in antibiotic therapy through the use of absorption-enhancing agents, resulting in higher, more effective antibiotic blood levels.

For the past two years, in a continuing search for more effective agents for enhancing oral antibiotic blood levels, our Research Laboratories screened eighty-four adjuvants, including sorbitol, citric acid, sodium hexametaphosphate, and other organic acids and chelating agents as well as phosphate complex and other analogs. After months of intensive comparative testing, glucosamine proved to be the absorption-enhancing agent of choice. Here's why:

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2 Of great importance to the practicing physician is the consistency of the blood level enhancement achieved with glucosamine. Extensive tests show that the enhancing effect with glucosamine occurs in a greater percentage of cases than with any other agent screened.

3 Glucosamine is a nontoxic physiologic metabolite occurring naturally and widely in human secretions, tissues and organs. It is nonirritating to the stomach, does not increase gastric secretion, is sodium free and releases only four calories of energy per gram. Also, there is evidence that glucosamine may favorably influence the bacterial flora of the intestinal tract.

For these reasons glucosamine provides you with an important new adjuvant for better enhancement of antibiotic blood levels. Tetracycline, potentiated physiologically with glucosamine, is now available to you as COSA-TETRACYN.

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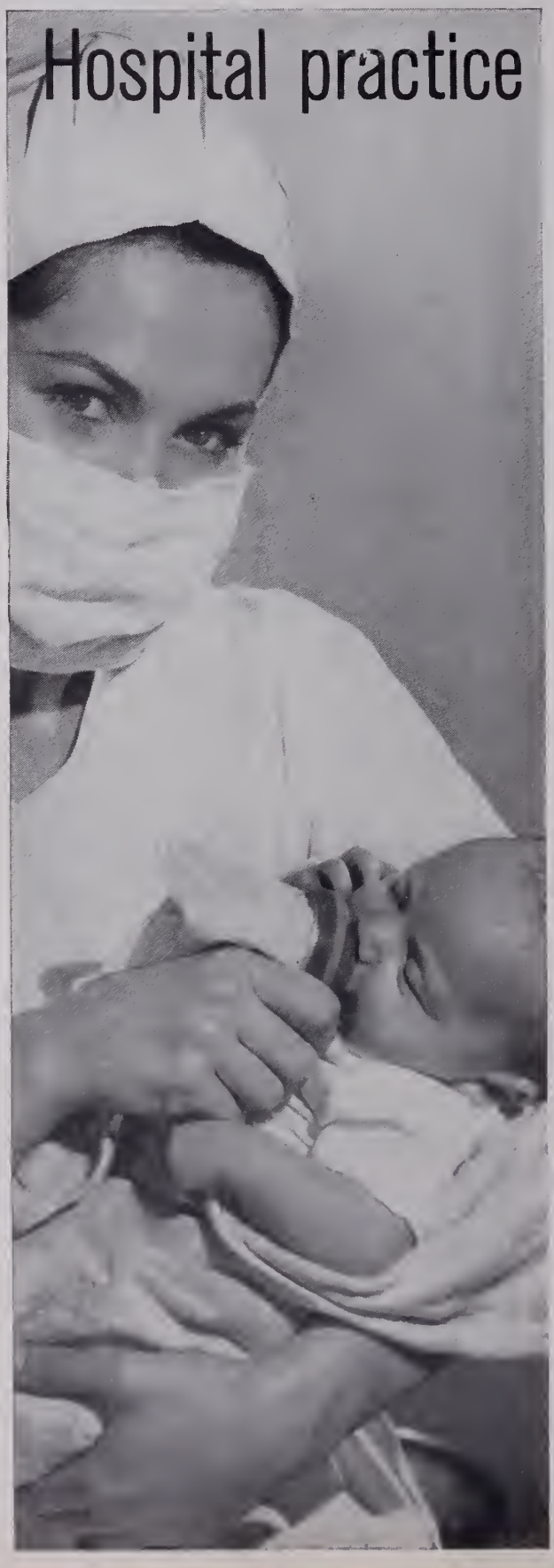
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Hospital practice of infant feeding

Standard formulas for NEWBORNS

Breast feeding is the procedure of choice for the newborn. But it may need to be complemented with standard formulas given here.

The first feeding, 12 hours after birth, consists of a prelacteal solution of 5% Karo Syrup, one or two ounces, repeated at two-hour intervals. Breast feeding is started on the second day for five-minute intervals and the prelacteal feeding continued immediately thereafter and between nursings.

Formula feeding is given on the second day if breast feeding is denied. The small infant prefers the three-hour schedule and the large infant the four-hour schedule.

The initial formula is a low-caloric milk mixture, gradually increased in concentration over several day intervals according to tolerance. Standard formulas for whole cow's milk or evaporated milk modified with diluted Karo Syrup as shown here, constitute the dietary regimen for well newborns.

First formulas for newborns, concentrated according to tolerance

Evaporated Milk Formulas: 3 oz. q 4h x 6 feedings

	FORMULA I	FORMULA II	FORMULA III
	12.5 cals./oz.	16 cals./oz.	20 cals./oz.
Evap. Milk . .	4 oz.	5 oz.	6 oz.
Water	14 oz.	13 oz.	12 oz.
Karo Syrup . .	1/2 oz.	3/4 oz.	1 oz.

Whole Cow's Milk Formulas: 3 1/2 oz. q 4h x 6 feedings

	FORMULA I	FORMULA II	FORMULA III
	11 cals./oz.	11.5 cals./oz.	13.5 cals./oz.
Whole Milk . .	8 oz.	9 oz.	10 oz.
Water	12 oz.	11 oz.	10 oz.
Karo Syrup . .	1/2 oz.	3/4 oz.	1 oz.

ADVANTAGES OF KARO IN INFANT FEEDING



Composition: Karo is a superior maltose-dextrin mixture because the dextrins are non-fermentable and the maltose is rapidly transformed into dextrose which requires no digestion.

Concentration: Volume for volume Karo furnishes twice as many calories as similar milk modifiers in powdered form.

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when are tranquilizers indicated in pediatrics ?

Some doctors have questioned the use of tranquilizers in children. They feel, and rightly so, that these drugs should not be used as palliatives to mask distressing symptoms, while etiological factors go uncorrected. But there are three situations in which even the most conservative physician would not hesitate to use tranquilizers:

1. When the usually well-adjusted child needs a buffer against temporary emotional stress, such as hospitalization.
2. When a child needs relief from an anxiety-reaction that is in turn anxiety-provoking, so as to pave the way for basic therapy.
3. When anxiety underlies or complicates somatic disease, as in asthma.

In such situations, tranquilizers are likely to be more effective and better tolerated than previously accepted therapy, such as barbiturates.

But the question arises: which tranquilizer is suitable for children?

Most of the physicians now using tranquilizers in pediatric practice have found the answer to be ATARAX, confirming the conclusions of repeated clinical studies.

ATARAX is effective in a wide range of pediatric indications.
ATARAX has produced a "striking response" in a wide range of hyperemotive states.* In a study of 126 children, "the calming effect of hydroxyzine (ATARAX) was remarkable" in 90%.* Among the conditions that are improved with ATARAX are tics, nervous vomiting, stuttering, temper tantrums, disciplinary problems, crying spasms, nightmares, incontinence, hyperkinesia, etc.*

ATARAX is well tolerated even by children.
"ATARAX appears to be the safest of the mild tranquilizers. Troublesome side effects have not been reported. . . ."*

ATARAX offers two pediatric dosage forms.
ATARAX Syrup is especially designed for acceptability by medicine-shy youngsters. A small 10 mg. tablet is also available. In either case, you will get a rapid, uncomplicated response. Why not, for the next four weeks, prescribe ATARAX for your hyperemotive pediatric patients. See whether you, too, don't find it eminently suitable.

*Documentation on request

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in any hyperemotive state

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10 mg. tablets—3-6 years, one tablet t.i.d.; over 6 years, two tablets t.i.d. Syrup—3-6 years, one tsp. t.i.d.; over 6 years, two tsp. t.i.d.

for adult tension and anxiety
25 mg. tablets—one tablet q.i.d. Syrup—one tbsp. q.i.d.

for severe emotional disturbances
100 mg. tablets—one tablet t.i.d.

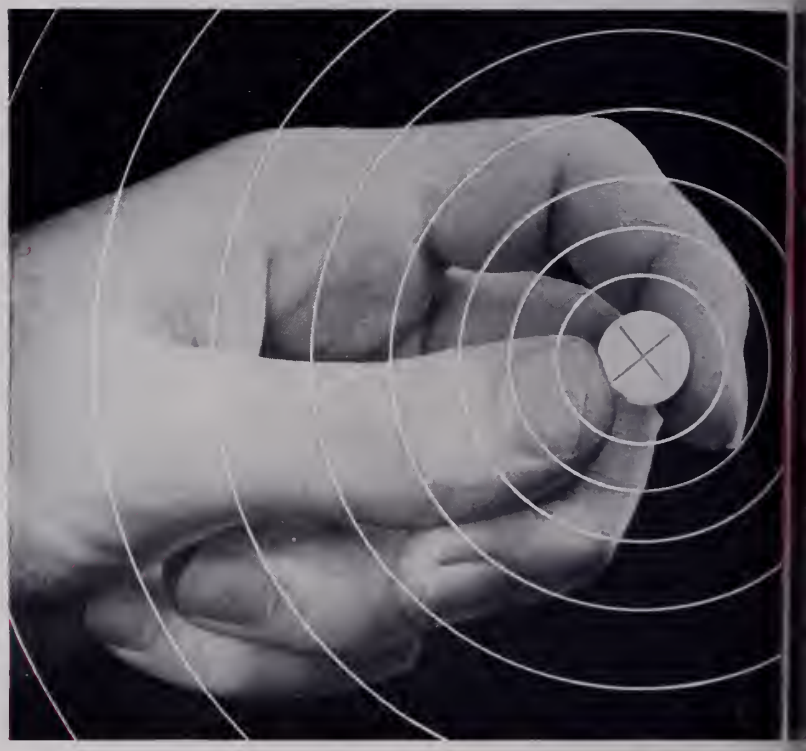
for adult psychiatric and emotional emergencies
Parenteral Solution—25-50 mg. (1-2 cc.) intramuscularly, 3-4 times daily, at 4-hour intervals. Dosage for children under 12 not established.

Supplied: Tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.

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Lowest Oral Dose In Sulfa History—0.5 Gm. 1 tablet) daily in the usual patient for main-nance of therapeutic blood levels

Higher Solubility—effective blood concentra-ons within an hour or two

Effective Antibacterial Range—exceptional ffectiveness in urinary tract infections

Convenience—the low dose of 0.5 Gm. (1 tab-t) per day offers optimum convenience and cceptance to patients

NEW DOSAGE

The recommended adult dose is 1 Gm. (2 tablets or 4 teaspoonfuls of syrup) the first day, followed by 0.5 Gm. (1 tablet or 2 teaspoonfuls of syrup) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours. Dosage in children, according to weight; i.e., a 40 lb. child should receive ¼ of the adult dosage. It is recommended that these dosages not be exceeded.

Tablets:
Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

Syrup:
Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

[1] Nichols, R. L. and Finland, M.: J. Clin. Med. 49:410, 1957.

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"... the degree of increase in exercise tolerance which sublingual erythrol tetranitrate permits, approximates that of nitroglycerin, amyl nitrite and octyl nitrite more closely than does any other of the approximately 100 preparations tested to date in this laboratory."

"Furthermore, the duration of this beneficial action is prolonged sufficiently to make this method of treatment of practical clinical value."

Riseman, J. E. F., Altman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites in the Treatment of Angina Pectoris, Circulation (Jan.) 1958.

* 'Cardilate' brand Erythrol Tetranitrate SUBLINGUAL TABLETS, 15 mg. scored



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Each double-layered Entozyme tablet contains:

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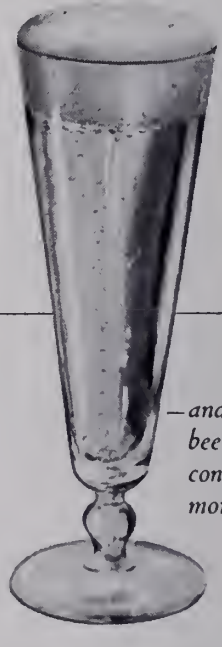

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—and a glass of beer, with your consent for a morale-booster

The Low Sodium Diet

Here are some things your patient can do to season his Low Sodium Diet. Spices and herbs, lemon and lime, variously flavored vinegars and some pepper are all he needs.

Thyme, marjoram and pepper add zest to hamburger. Chicken's delicious with lemon, rosemary and sweet butter to baste. He can try sweet butter with nutmeg on green beans, savory on limas, tarragon with carrots, basil with tomatoes. Onions boiled with whole clove and thyme delight the taste of an epicure!

With these flavor tricks to add zest to his meals—and a glass of beer* now and then, at your discretion, your patient has a diet that's both good tasting and good for him.

*Sodium: 7 mg./100 gm., 17 mg./8 oz. glass (Average of American Beers)

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STOP respiratory congestion orally

relief in minutes..lasts for hours

In the common cold, nasal allergies, sinusitis, and postnasal drip, one timed-release Triaminic tablet brings welcome relief of symptoms *in minutes*. Running noses stop, clogged noses open—and *stay* open for 6 to 8 hours. The patient can breathe again.

With *topical* decongestants, "unfortunately, the period of decongestion is often followed by a phase of secondary reaction during which the congestion may be equal to, if not greater than, the original condition. . . ."* The patient then must reapply the medication and the vicious cycle is repeated, resulting in local overtreatment, pathological changes in nasal mucosa, and frequently "nose drop addiction."

Triaminic does not cause secondary congestion, eliminates local overtreatment and consequent nasal pathology.

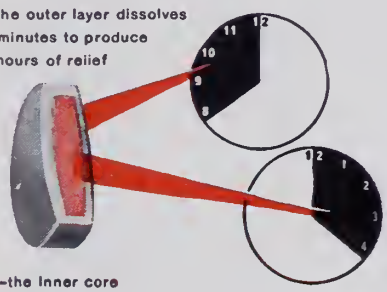
*Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

Each double-dose "timed-release" TRIAMINIC *Tablet contains:*

Phenylpropanolamine hydrochloride	50 mg.
Pyrilamine maleate	25 mg.
Pheniramine maleate	25 mg.

Dosage: 1 tablet in the morning, afternoon, and in the evening if needed.

Each double-dose "timed-release" tablet keeps nasal passages clear for 6 to 8 hours— provides "around-the-clock" freedom from congestion on just three tablets a day



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phosphate-free calcium, 10 essential vitamins, 8 important minerals. Bottles of 100.

*due to calcium-phosphorus imbalance

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References: 1. Groskloss, H. H., et al: Clin. Med. 2:885 (Sept.) 1955. 2. Goldsmith, J. W.: Minnesota Med. 40:99 (Feb.) 1957.

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STEARATE (Erythromycin Stearate, Abbott)

against staph-, strep- and pneumococci



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ERYTHROCIN is indicated in treating infections caused by staphylococci, streptococci (including enterococci), and pneumococci. Indicated also, in treating infections that have become resistant to other antibiotics. May be used for patients who are allergic to penicillin or other antibacterials.

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Usually administered in a total daily dose of 1 to 2 Gm., depending on severity of infection. Suggested dose is 250 mg. every six hours; for severe infections, usual dose is 500 mg. every six hours.

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802069

Compocillin-V®

for those penicillin-sensitive organisms



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Against all penicillin-sensitive organisms. For prophylaxis and treatment of complications in viral conditions. And as a prophylaxis in rheumatic fever and in rheumatic heart disease.

Dosage

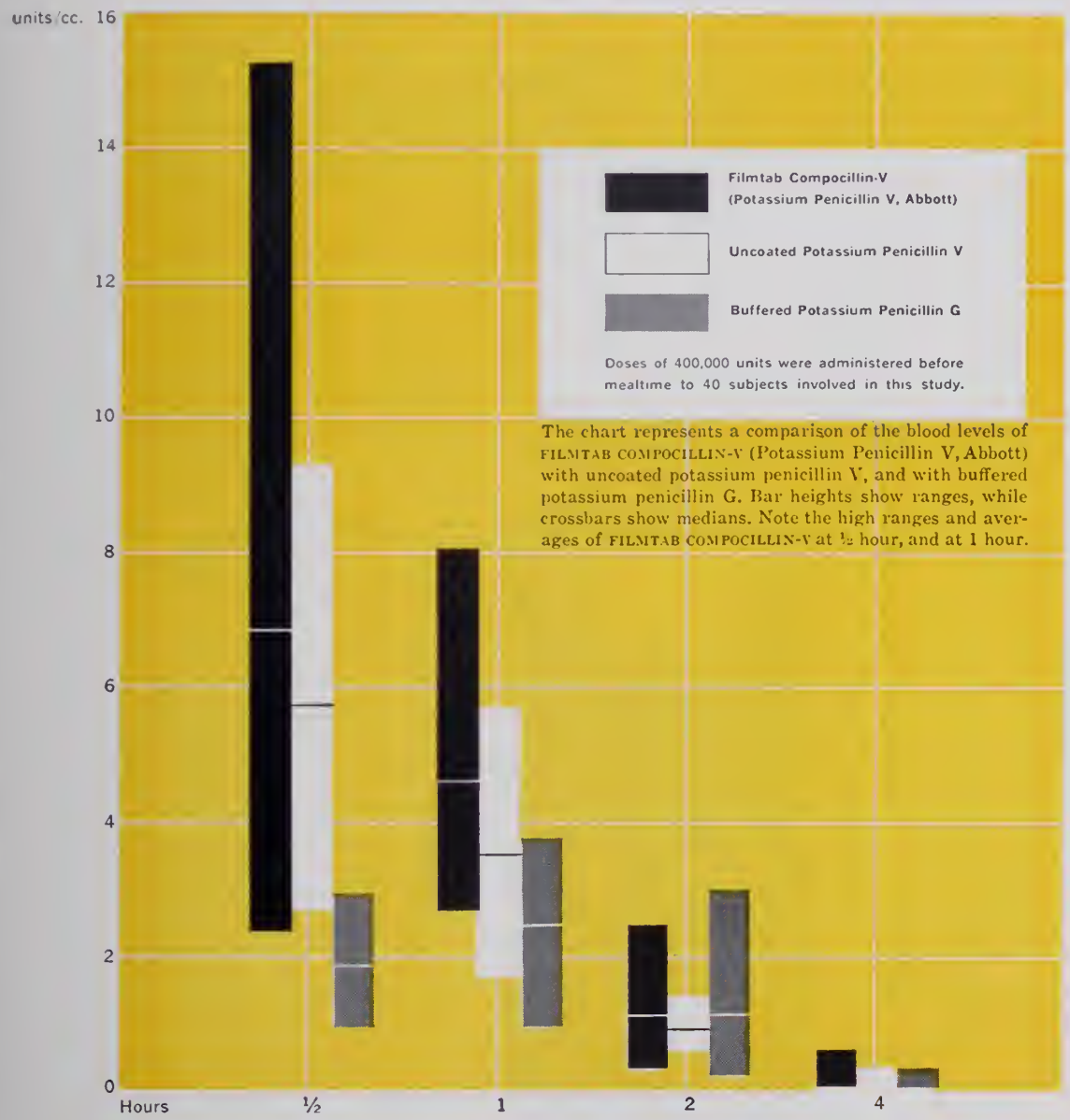
Depending on the severity of the infection, 125 to 250 mg. (200,000 to 400,000 units) every four to six hours. For children, dosage is determined by age and weight.

Supplied

Filmtabs COMPOCILLIN-V (Potassium Penicillin V, Abbott) come in 125 mg. (200,000 units), bottles of 50; and in 250 mg. (400,000 units), bottles of 25. Oral Suspension COMPOCILLIN-V (Hydrabamine Penicillin V, Abbott), contains 180 mg. per 5-cc. teaspoonful, in 40-cc. and 80-cc. bottles.

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Abbott

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(Ristocetin, Abbott)

and when coccal infections hospitalize the patient



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SPONTIN is indicated for treating gram-positive bacterial infections. Clinical reports have indicated its effectiveness against a wide range of staphylococcal, streptococcal and pneumococcal infections. It can be considered a drug of choice for the immediate treatment of serious infections caused by organisms resistant to other antibiotics.

Dosage

Recommended dosage depends on the sensitivity of the microorganism and on the severity of the disease under treatment. For pneumococcal and streptococcal infections, a dosage of 25 mg./Kg. per day will usually be adequate. Majority of staphylococcal infections will be controlled by 25 to 50 mg./Kg. per day. However, in endocarditis due to relatively resistant strains or where vegetations or abscesses occur, dosages as high as 75 mg./Kg. per day may be used. It is recommended that the daily dosages be divided into two or three equal parts at eight- or twelve-hour intervals.

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SPONTIN is supplied as a sterile, lyophilized powder, in vials representing 500 mg. of ristocetin activity.

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A LIFESAVING ANTIBIOTIC AFTER OTHER ANTIBIOTICS HAD FAILED



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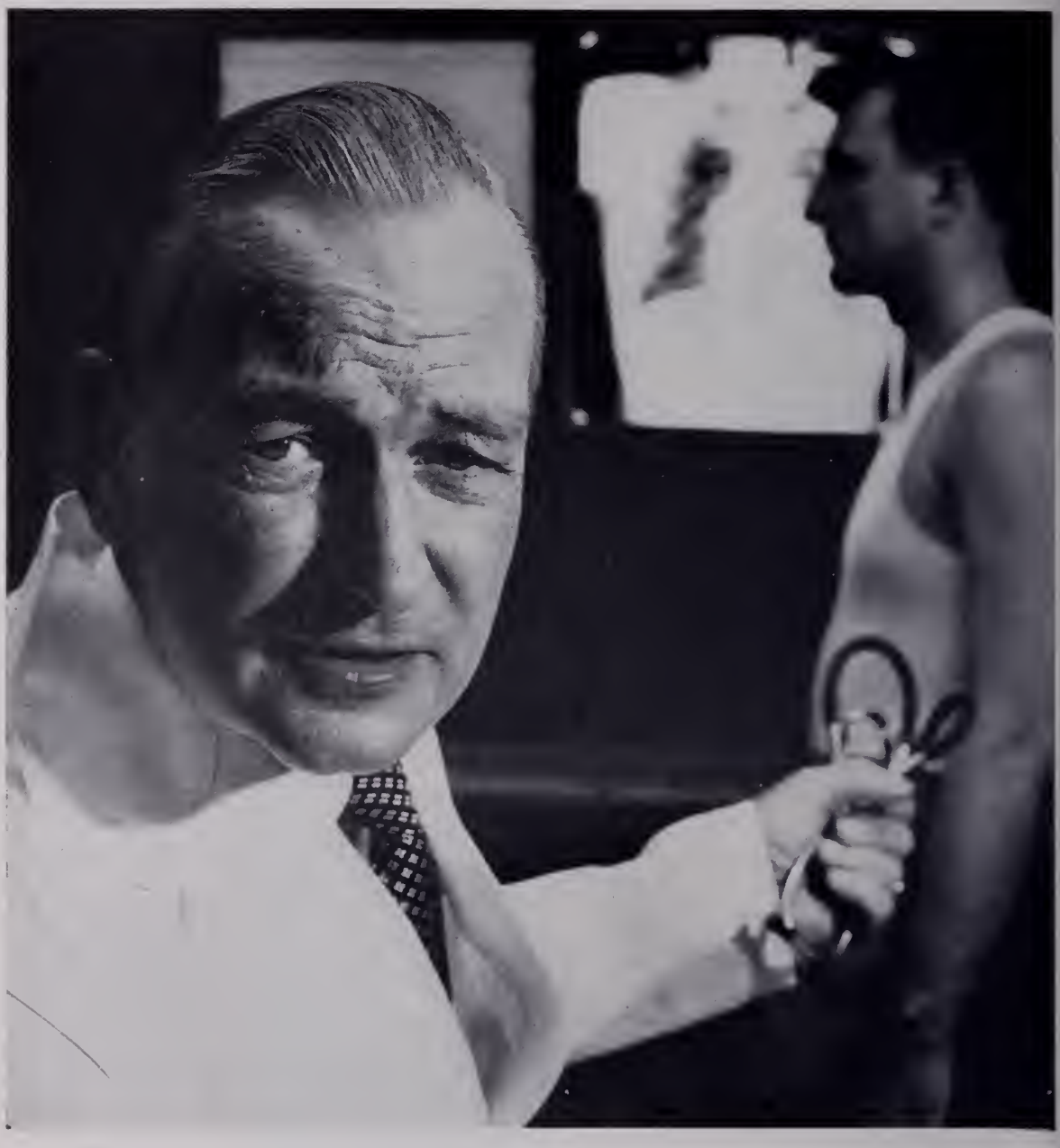
During these careful, clinical investigations, lives were saved after weeks (and sometimes months) of antibiotic failures. These were the cases where the infecting organisms had become resistant to present-day therapy. And, just as important, were the good results found against a wide range of gram-positive coccal infections.

Essentially, SPONTIN is a drug for hospital use, for patients with potentially dangerous infections. In its present form, SPONTIN is administered intravenously using the drip technique. Dosage may be dissolved in 5% dextrose in water or in any isotonic or hypotonic saline solution. Some of the important therapeutic points of SPONTIN include:

1. successful short-term therapy for acute or subacute endocarditis
2. new antimicrobial activity – no natural resistance to SPONTIN was found in tests involving hundreds of coccal strains
3. antimicrobial action against which resistance is rare – and extremely difficult to induce
4. bactericidal action at effective therapeutic dosages.

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help reduce
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Raudixin provides gradual, sustained lowering of blood pressure in hypertensive patients, as well as a mild bradycardia. Hence, the work load of the heart is reduced.

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Corrin, K. M.: Am. Pract. & Dig. Treatment 8:721 (May) 1957.

Tranquilizing Raudixin helps relax the anxious hypertensive patient so that he is better able to cope with external pressures without being overwhelmed by them. By reducing these anxieties and tensions, Raudixin helps break the mental tension —hypertension cycle.

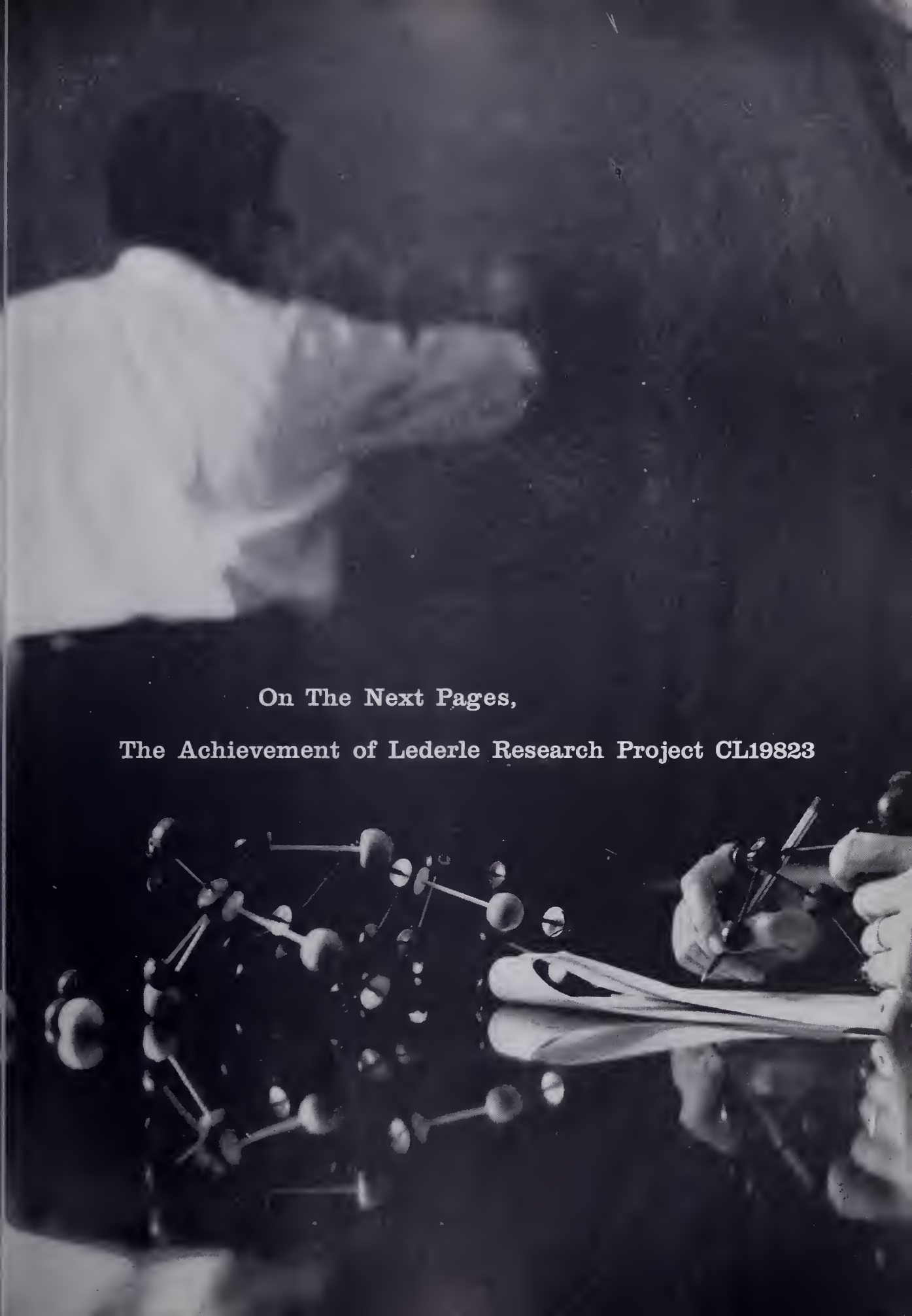
Dosage: Two 100 mg. tablets once daily; may be adjusted within range of 50 to 300 mg. *Supply:* 50 and 100 mg. tablets. Bottles of 100, 1000 and 5000.

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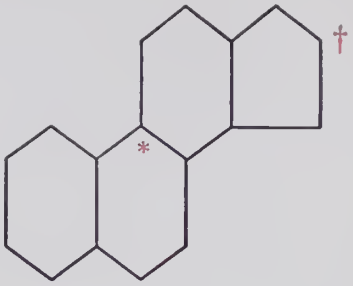
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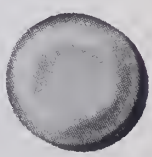
'PENTAZETS' contains:

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Supplied: Vials of 12.

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FOR generations without number wine has been extolled as an "effective stimulant" and, therefore, valuable aid to treatment in various types of cardiovascular disease. It was this peculiar property, no doubt, which prompted the poet, Salerno, some 800 years ago to write—"Sound wine revives in age the heart of youth."

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Moreover, aside from the purely hypotensive actions of wine, its unquestionable euphoric effects help counter the depression, apprehension and anxiety so frequently present in sufferers from heart and coronary disorders.

The beneficial actions of wine appear to transcend those of more concentrated alcoholic beverages—valuable cardiotonic properties having been attributed to the aliphatic aldehydes and other nonalcoholic compounds recently isolated from certain wines and grape varieties.

It goes without saying that the use of alcohol, even in the form of wine, is contraindicated in hypertension accompanied by certain types of renal disease.



For a discussion of the many modern Rx uses for wine, write for the brochure, *"Uses of Wine in Medical Practice"* to Wine Advisory Board, 717 Market Street, San Franciscio 3, California.

Alseroxylon less toxic than reserpine

"...alseroxylon is an antihypertensive agent of equal therapeutic efficacy to reserpine in the treatment of hypertension, but with significantly less toxicity."

Ford, R.V., and Moyer, J.H.: Rauwolfia Toxicity in the Treatment of Hypertension: Some Observations on Comparative Toxicity of Reserpine, a Single Alkaloid, and Alseroxylon, a Compound Containing Multiple Alkaloids, Postgrad. Med., January, 1958.



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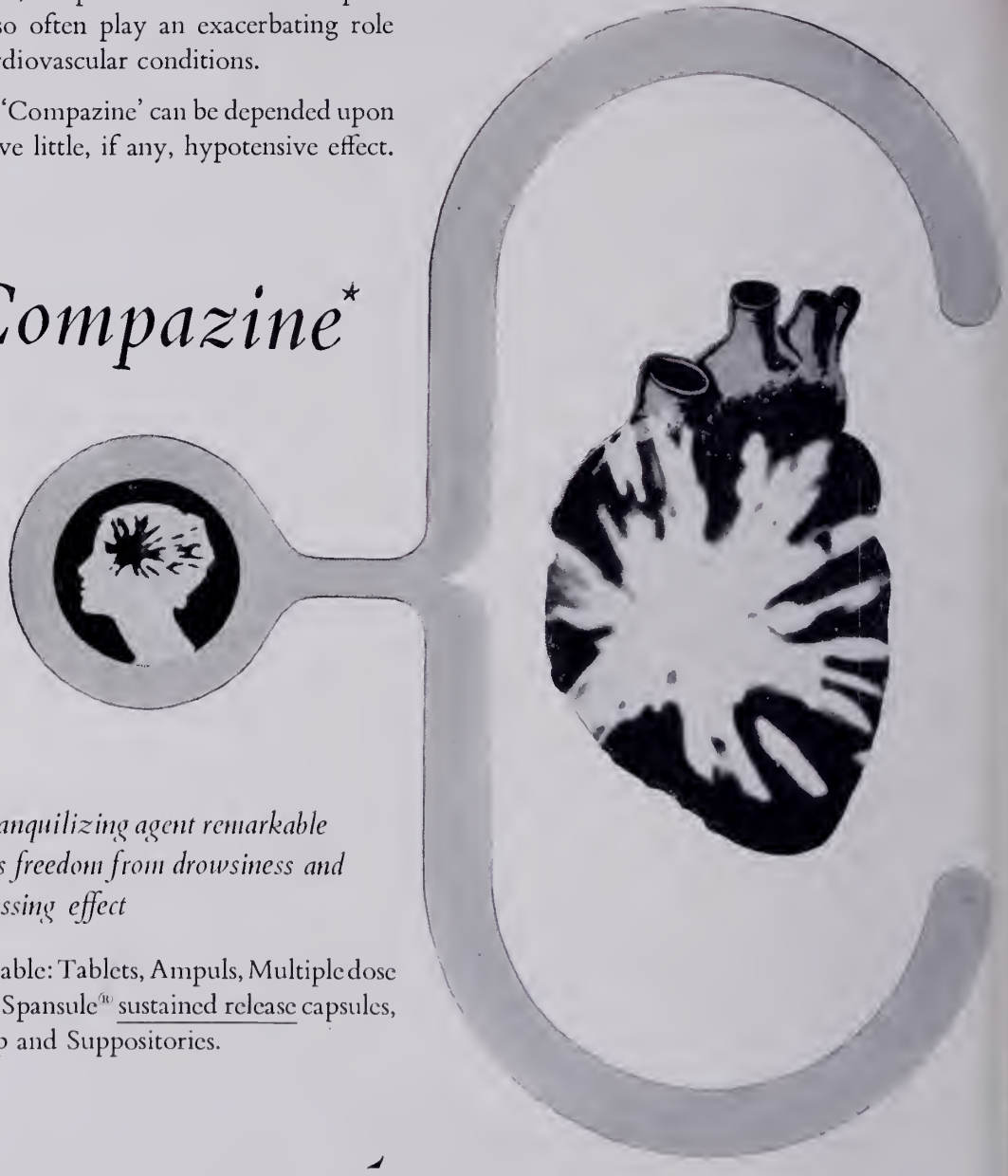
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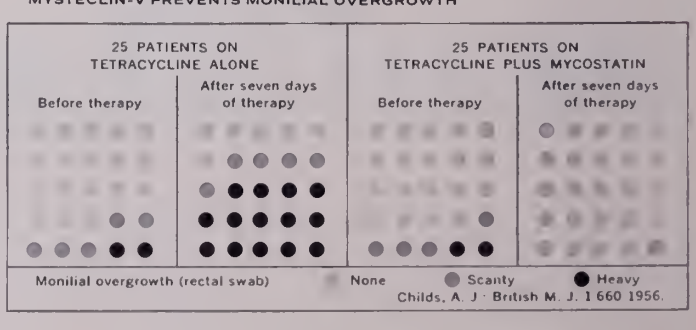
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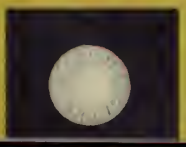
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1. Zimmerman, F. T., and Burgemeister, B.: *Arch. Neurol. & Psychiat.* 72:720, 1954.
2. Zimmerman, F. T., and Burgemeister, B.: J.A.M.A. 157:1194, 1955.
3. Zimmerman, F. T.: *Arch. Neurol. & Psychiat.* 76:65, 1956.



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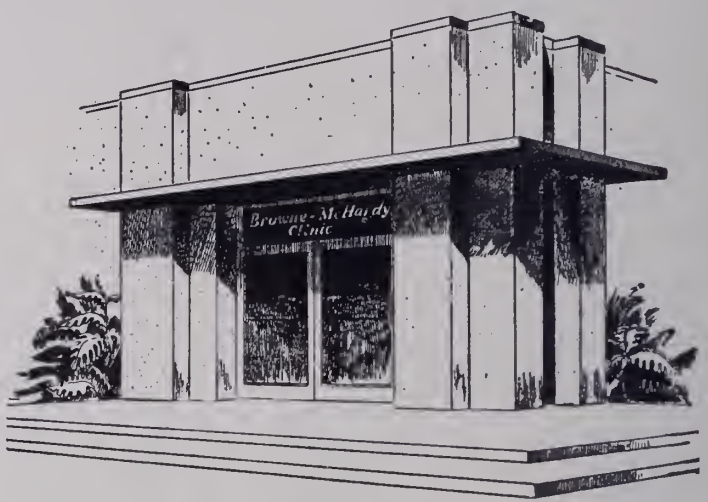
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references: 1. Strub, I. H.: Personal communication. 2. Ayd, F. J., Jr.: presented at Ohio Assembly of General Practice, 7th Annual Scientific Assembly, Columbus, September 18-19, 1957.

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References: 1. Spies, T. D., et al.: J.A.M.A. 159:645, 1955. 2. Spies, T. D., et al.: Postgrad. Med. 17:1, 1955. 3. Gelli, G., and Della Santa, L.: Minerva Pediat. 7:1456, 1955. 4. Guerra, F.: Fed. Proc. 12:326, 1953. 5. Busse, E. A.: Clin. Med. 2:1105, 1955. 6. Sticker, R. B.: Panel Discussion, Ohio State M. J. 52:1037, 1956.

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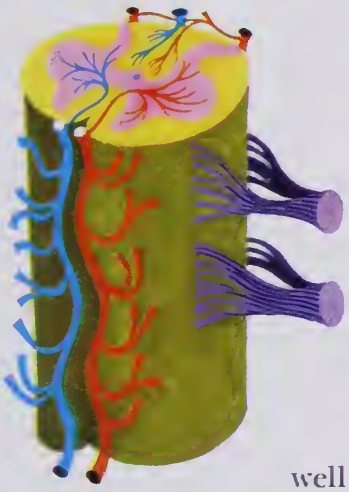
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references: 1. Altschul, A. and Billow, B.: The clinical use of meprobamate. (Miltown®). New York J. Med. *57*: 2361, July 15, 1957. 2. Atwater, J. S.: The use of anticholinergic agents in peptic ulcer therapy. J. M. A. Georgia *45*:421, Oct. 1956. 3. Borrus, J. C.: Study of effect of Miltown (2-methyl-2-*n*-propyl-1,3-propanediol dicarbamate) on psychiatric states. J. A. M. A. *157*:1596, April 30, 1955. 4. Cayer, D.: Prolonged anticholinergic therapy of duodenal ulcer. Am. J. Digest. Dis. *1*:801, July 1956. 5. Marquis, D. G., Kelly, E. L., Miller, J. G., Gerard, R. W. and Rapoport, A.: Experimental studies of behavioral effects of meprobamate on normal subjects. Ann. New York Acad. Sc. *67*:701, May 9, 1957. 6. Phillips, R. E.: Use of meprobamate (Miltown®) for the treatment of emotional disorders. Am. Pract. & Digest Treat. *7*:1573, Oct. 1956. 7. Selling, L. S.: A clinical study of Miltown®, a new tranquilizing agent. J. Clin. & Exper. Psychopath. *17*:7, March 1956. 8. Wolf, S. and Wolff, H. G.: Human Gastric Function. Oxford University Press, New York, 1947.

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EMERGENCY GASTRECTOMY FOR ACUTE GASTRODUODENAL PERFORATION *

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In recent years, there has been much interest in the use of gastrectomy as an emergency procedure for acute gastroduodenal perforation. This interest was stimulated by the results of long term follow-up reports which showed that simple closure of a perforation was frequently followed by medical intractability or subsequent definitive surgery.

The primary responsibility of a surgeon who treats a patient with an acute perforated ulcer is to save his life. Therefore, the later behavior of the ulcer, while important, is a secondary matter. If, however, both objectives may be managed safely in selective cases by one procedure, further investigation of it is indicated.

The use of nonsurgical treatment for this catastrophe is thought by most physicians to be too hazardous, and is usually reserved for two groups of patients. First, those patients whose general condition is so poor as to preclude any type of operative procedure, and second, those patients whose perforation has occurred a sufficient length of time prior to any treatment so there is no doubt that the lesion has been sealed off.

In the emergency treatment of this condition, therefore, an operative procedure is almost always indicated. A curious geographic diversity of opinion has developed in respect to the procedure used. In 1902, Keetly [1] performed the first partial gastrectomy for this catastrophe, and in 1919, Von Haberer [2] recommended that all perforated peptic ulcers be treated in this manner. The plan became popular on the European continent and by 1939,[3] Yudine from Moscow reported 937 resections for this cause with only 84 deaths or a mortality of 8.9 per cent. During the same period, he treated 435 ruptured peptic ulcers by simple closure with 138 deaths or a 31.7 per cent mortality. This is an extraordinary record for the period of this report, but, of course, the relative case fatality rates should be cautiously interpreted as the very ill patients were obviously submitted to closure rather than resection.

There is now renewed interest in gastrectomy for this condition in Britain and the Scandinavian countries. This year, Pierandozzi,[4] et al, reported their results with vagotomy and pyloroplasty for perforated duodenal ulcer.

Until recently Strauss [5] and Bisgard [6] have been the chief American champions for gastrectomy as an emergency treatment in selected cases. There are now reported series of cases from many other sections of the country, i.e. from Houston,[7] Seattle,[8] New York,[9] and from New Orleans.[10]

END RESULTS OF SIMPLE CLOSURE

Formerly, there was a rather strong

* Presented at the Tenth Annual Meeting of the Surgical Association of Louisiana, New Orleans, November 3, 1957.

belief that most patients did very well after simple closure of a perforation. Guthrie and Sharer [11] felt that perforation might actually destroy an ulcer, just as if a cautery had been used. Many observers felt that a person who suffered this accident had had an impressive warning and, therefore, would obey instructions in the future.

As the number of long term follow-up studies increased, however, it became remarkably clear that the results of simple closure were far from good. A summary of recent follow-up studies [12] (Table 1)

TABLE 1
FOLLOW UP AFTER CLOSURE

Author	No. of Cases	Recurrences	Further Surgery
Turner (1951)	147	75%	38%
Woordiak (1953)	826	60%	35%
Bierring (1953)	191	61%	37%
Troell (1954)	70	70%	50%

Quoted from Bisgard [12]

shows that there has been a definite, fairly severe, recurrence rate of about 70 per cent. In addition about 40 per cent of patients required further definitive surgery.

More specifically, Scholnick and Hastings,[13] reporting on their follow-up patients treated by simple closure, had 107 patients who were advised to follow medical treatment when they left the hospital and were followed for a minimum of five years. (Table 2). Impressive are the few asymptomatic cases, (16 per cent), and the

TABLE 2
RESULTS OF MEDICAL THERAPY 107 PATIENTS

	Patients	Per Cent
1. Response to Medical Rx	54	
A. Asymptomatic	17	16.0
B. Mild-Moderate Distress	30	28.0
C. Died of other Disease	7	7.0
2. Failure on Medical Rx	53	
A. Intractable Pain	6	5.6
B. Ulcer Surgery	44	41.0
C. Died of Ulcer	3	2.8

From Scholnick and Hastings: [13] Perforated benign ulcer, West. J. Surg. Obst. & Gynec. 65:136 (May-June) 1957.

large number requiring continued medical treatment or operation.

In a current study of cases of perforated peptic ulcer since 1950 on all services at Charity Hospital of Louisiana in New Orleans, Lawrence [14] has thus far collected 146 cases of simple closure with 6 deaths. In the follow-up studies on these patients, which is admittedly brief, and in which 35 patients never returned to the hospital following discharge, there were 26 cases who required subsequent definitive surgery.

JUSTIFICATION FOR GASTRECTOMY

In his collected series of 16,752 cases of perforated peptic ulcer reported in 1940, DeBakey [15] reported a mortality rate of about 25 per cent. Most of these cases were treated by simple closure. In 211 cases, which he analyzed from Charity Hospital of Louisiana in New Orleans, the mortality rate was 19 per cent. Since 1950, at the same institution, Lawrence [14] has thus far found 189 cases of perforated ulcer with 12 deaths—5 without treatment —or a mortality rate of about 6.3 per cent. The recent reduction in mortality is undoubtedly due, for the most part, to the excellent adjunct methods employed today which were not available previously. The average mortality rate for the management of perforated peptic ulcers treated by simple closure is about 10 per cent. A collection of 565 cases [10] in the past several years treated by gastrectomy, revealed only 21 deaths or a mortality of little over 2 per cent. This is slightly lower than the case fatality rate for gastrectomy for chronic peptic ulcer in most clinics. In the consideration of these statistics, however, it must be emphasized that the patients submitted to gastrectomy are only those who are felt to be good risks.

In spite of the reported safety in performing gastrectomy for this condition in selected cases, the mortality would certainly be increased considerably if this method was undertaken by inexperienced surgeons. If performed as a routine matter whenever the only method of selection is the ability of the patient to withstand the procedure, then there would be a con-

siderable number of unnecessary gastrectomies. This would amount to the 30 per cent of patients who could be managed without much difficulty on medical treatment. In addition, these patients would be subjected to the possible complications of gastric resection—a statistically small, but an important number. Obviously then, a method of treatment that is admittedly radical and which may have serious sequelae must be hedged around with restrictions.

The primary restriction should be the general condition of the patient to safely withstand the procedure. Next, the procedure should be limited to experienced gastric surgeons, or to properly trained and supervised residents, with good hospital facilities, and the availability of a skilled anesthetist.

When these general conditions are met, there are some surgeons who believe that once an ulcer has demonstrated such a degree of virulence as to proceed to acute perforation, it is already in the category of lesions which should have a resection. This mode of therapy results in some patients submitted to resections unnecessarily. In an attempt to restrict this to the smallest possible number of patients, I am of the opinion that there are some other factors which should aid in the selection of patients for resection. These factors would be those which influenced the prognosis after perforation and must logically be made from follow-up studies. They include the patient's social and economic status, the presence or absence of a previous ulcer history, the acuteness or chronicity of the lesion, the age of the patient, and the time interval between perforation and operation.

From a practical standpoint, the factors listed which proved to be important prognostically are primarily two: (1) the presence or absence of previous ulcer history, and the acuteness or chronicity of the lesion which actually blend together, and (2) the age of the patient at the time of perforation.

PREVIOUS ULCER HISTORY AND CHRONICITY OF LESION

Most recorded series state that the longer the duration of ulcer symptoms before perforation, the more likely is there to be a recurrence afterwards. About 80 to 90 per cent of patients who perforate an ulcer have some previous symptoms.[13] Luer,[16] Scholnick and Hastings,[13] Illingworth, et al,[17] and Troell,[18] all present good evidence to show that those who perforate without any previous symptoms tend to have a fairly good prognosis. Conversely, those with long or severe previous ulcer symptoms, most often develop serious difficulty.

Gilmour [19] correlated clinical history before perforation and the pathologic findings at operation, and on this basis divided the cases into acute and chronic ulcers. In 116 cases in which symptoms were of short duration and duodenal scarring minimal, 62 had satisfactory results and 28 moderately satisfactory results. The remaining 26 had persistent symptoms or suffered relapses, and 11 required secondary surgery. In striking contrast, everyone of the 65 patients with chronic ulcers had unsatisfactory results, and 41 of the 65 patients required secondary surgery.

AGE OF PATIENT AT TIME OF PERFORATION

While the age of the patient naturally plays a role in the immediate mortality, the concern here is with its importance regarding prognosis. In the studies by both Illingworth,[17] et al, and Luer,[16] the younger patients had a definitely higher incidence of recurrence than those over 50 years of age. The reasons for this may be related to the higher incidence of hypochlorhydria in the aged, and the fact that the younger patients have a longer time to be subjected to their ulcer diathesis.

ANALYSIS OF CASES

In January of 1953, a deliberate change in the policy of management of acute gastroduodenal perforation was made by the surgical service of Tulane University School of Medicine at Charity Hospital of Louisiana in New Orleans. This change

consisted in the performance of immediate subtotal gastrectomy instead of simple closure in all suitable cases. As will be emphasized later, only the very good risk patients were submitted to gastrectomy; whereas, the more critically ill were treated by simple closure.

From January, 1953, through May, 1957, there were 96 patients on the Tulane Surgical service treated by surgical measures. Of these, 46 had simple closure of their perforation with 6 deaths, a mortality rate of 13 per cent. The remaining 50 patients had subtotal gastrectomies with 1 death or a 2 per cent mortality rate. This 1 death resulted from a proved transfusion reaction in a 57 year old man, who had a perforated gastric ulcer.

While a time limit between perforation and operation was not definitely used in selecting the cases for gastrectomy, in the early phase of this report most of the cases were done within a period of eight to twelve hours after perforation. The longest time interval in this series was twenty-one hours. We no longer feel that this interval should play an important part in the selection of cases, except as it relates to the patient's general condition.

Most of the 46 cases submitted to simple closure were critically ill, and it is doubtful that many could have tolerated the more radical procedure. The relatively high mortality of 13 per cent for closure compared to 2 per cent for resection shows that they were well selected. Preoperative preparation always included nasogastric suction, the intravenous infusions of dextrose solution, and the administration of antibiotics. Transfusions were ordered or withheld on an individual status.

All of the 96 operations were performed by residents. The 50 gastrectomies were regarded as technically easy, as the associated edema often facilitated the dissection. However, in two instances, due to the reaction and scarring in the area, tube duodenostomy was necessary. The standard Billroth II technique was usually followed.

For the sake of completeness, it should be mentioned that one of the 46 patients treated by simple closure began to bleed shortly after operation and required emergency gastrectomy on the sixth postoperative day for control of hemorrhage. This case deserves special mention, because it emphasized the possibility of simultaneous acute peptic ulcers on the anterior and posterior wall of the duodenum. In our series of 50 gastrectomies, a definite additional posterior ulcer was noted in 7 cases. This was probably not searched for in all cases, but this incidence of at least 14 per cent multiple ulcers is recently becoming appreciated in the cases of perforation with hemorrhage. It is also indicative of the severe nature of their ulcerative disease.

DISCUSSION

It is generally agreed that patients who have acute gastroduodenal perforation are best treated by surgical means. This means that a major operative procedure must be undertaken. The operation of simple closure leaves the majority of patients facing severe recurrent disease and many, a future subsequent operation. It has been shown that subtotal gastrectomy can be performed safely under proper conditions, and that it will effect a cure of the disease in about 85 per cent of the cases. It remains, therefore, for us to have some criteria of selection.

There are, I believe, certain absolute indications for gastrectomy in acute perforations with which there should be little disagreement. These, I list as follows: (1) carcinoma of the stomach (delimited resectable lesions), (2) associated with recent or simultaneous gross hemorrhage, and (3) associated with fixed pyloric obstruction.

In addition, from the knowledge gained by follow-up studies, I believe the following are certainly justifiable indications: (1) recurrent perforations, and (2) patients with a definite previous ulcer history (preferably more than six months) and in the younger age groups (less than 50 years).

SUMMARY

The experience of treating selected cases of acute gastroduodenal perforation by gastric resection on the Tulane University surgical service at Charity Hospital of Louisiana in New Orleans is presented. There has been only 1 death in 50 cases so treated since January, 1953.

It is the opinion of the author that a more aggressive attitude than simple closure is necessary from follow-up studies, and, therefore, gastric resection is often indicated. The routine use of gastric resection seems unwarranted, but rather it is suggested that certain criteria based on the condition of the patient and his prognosis, be used to determine the appropriate treatment. This course of action should result in better end results than the routine use of either simple closure or gastrectomy.

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PINPOINTING PUBLIC HEALTH NEEDS IN LOUISIANA *

An Interim Report

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New Orleans

The correlation of socio-economic factors with the status of community health, particularly physical health, is a relationship that has long been known. Such studies have been made on an international scale by the League of Nations and the United Nations. They have also been made on a national scale in most countries, and on smaller scales in many states, provinces, and local areas. That a significant correlation exists between socio-economic factors and group or class health status needs no further proof. That the correlation is a causal relationship has been accepted as more than a hypothesis. It is not enough, however, that we have knowledge of broad interrelationships between health and socio-economic factors, for, unless we can pinpoint these relationships for use in practical application of hygiene programs, such knowledge remains academic to the public health worker. What, then, is the nature of a pinpointing program?

THE PINPOINTING PROGRAM

During the past several decades, the

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"balanced" program has been the slogan among the advanced guard of public health administrators. It has reached the stature almost of becoming a philosophy among those responsible for public health program building. This movement was indeed important in helping to develop the basic facilities and personnel in health departments, and in broadening the perspective of public health workers. Although few places in our country have attained the ideals predicated by the balanced program philosophy, local health departments, in general, have experienced phenomenal expansion of programs, personnel, and facilities as the result of this movement. Crude death rates, and specific mortality and morbidity rates for the most important death dealing communicable diseases of a half century ago have all been reduced to encouraging low levels. How much of these reductions have been caused by socio-economic and political factors is the province of further study. These decreases, however, have been general throughout the country, but they have not been uniform for all local health jurisdictions. In some areas, various mortality and morbidity rates are still high or moderately high, and in other places they have been greatly reduced, as is the case for maternal and infant mortality, tuberculosis, venereal diseases, typhoid fever, dysentery, diarrheas, hookworm and other intestinal parasitic diseases, pneumonia, and other diseases. Because of the uneven decline in specific mortality and morbidity rates, and the increase of formerly low rates for specific conditions, the time has come for a reappraisal of our "balanced" program activities to find out whether our programs are now really balanced.

In order that there be no misunderstanding of the meaning of the term, "balanced" program, let us consider its definition. For some who have given much thought to program building, the "balanced" program has had a dynamic meaning, connoting the continuous process of evaluating program activities in the stream of the interaction between social and biological phenomena, and in effecting program changes in accordance with the needs of changing conditions. By and large, however, in the popular sense of the term, perceived more or less statically, it has meant that for every unit of population there should be a certain number of health officers, nurses, sanitarians, etc., and that these workers devote certain aliquot portions of their activities to all the recognized categories of public health according to a generally accepted formulation which some professional authority or other had devised.

The latter concept of the "balanced" program came into being after the hectic period of dread disease epidemics which had forced public health programming to concentrate on water supply and waste disposal sanitation and immunization. With the lightening of our communicable disease burden, the wider scope of public health activities began to engage us. Emergency public health gave way to a broad program in which each category of public health was allocated a reasonably satisfactory portion of time in accordance with what was generally considered adequate.

Although the popularly developed "balanced" program had served effectively in raising the quantity and quality of public health personnel and the general standards in the operations of local health departments, it became apparent recently that some phases of the "balanced" program had been more effective than others, so that actually the "balanced" program became quite unbalanced. Thus, the desired even development in all phases of public health eventuated as an uneven development, the "weak" areas becoming pinpointed in contrast to the "strong" areas.

The unfolding of the "weak" areas has led to a reconsidered approach to program planning which may be designated as the "pinpointing" program. This consists in keeping an alert surveillance in those recognized essential categories of public health where the hazards to the

population have been greatly reduced, while at the same time concentrating efforts in those phases of work where progress has lagged or where new problems have arisen.

The "balanced" program, therefore, dynamically conceived, is a double-edged weapon of public health administration. While one point aims to attack health hazards in general, the other is aimed at bolstering the special weak spots in the defenses, i.e., pinpointing the attack.

The "pinpointing" approach is not a simple procedure. It involves special efforts in collecting, tabulating, and analyzing the statistical data of each locality, in organizing special studies of conditions where indicated, in mobilizing the official and nonofficial agencies into cooperation in solving special local problems, and in inducing flexibility and mobility into our programs so that the rigidity inherent in rontinized programs may not become an obstacle to pinpointing activities.

The pinpointing concept in program planning is not new when examined historically. It is merely a new name for an old approach. It is an approach which forces itself into all social planning when the routine of the past needs to be reconsidered to meet the new conditions inherent in social change. The balanced program of yesterday cannot be acceptable as the balanced program of today or tomorrow. Pinpointing is the technique of reestablishing balance. Every administrator of a public health program must continually be aware of this process lest he lose contact with reality. We have reached a stage in public health programming at present where pinpointing is the order-of-the-day.

THE LOUISIANA SITUATION

Louisiana was among the first states in the Union which demonstrated the basic principle of Thomas Jefferson's political philosophy relating to health, namely, that public health was the province of each sovereign state. This was in 1855 with the establishment of the Louisiana State Board of Health. The trials of this Board resulting in U. S. Supreme Court decisions on the rights of a state board of health to protect the health of its people are well known to historians.[1] Louisiana was the classical battle ground in the United States where the legal aspects of public health relating to federal, state and local jurisdiction was most vigorously contended. Accordingly, the local boards of health in Louisiana are subordinate to the State Board of Health. Nevertheless, ample latitude for local freedom of action exists to allow for unhampered expression of local ingenuity in guarding community health.

The national census showed Louisiana to be predominantly rural up to 1950. During almost the entire history of civilization the rural areas of the world were safer places to live in than urban areas. However, in the western world, the great strides in urban sanitation and other hygienic measures had tipped the scales of the forces of health in favor of urban areas during the decade beginning with 1920. This was also true for Louisiana. Thus, impetus for organizing health services in rural areas increased noticeably during that decade. It appears that by 1950, in Louisiana, the unfavorable situation of the rural areas had almost disappeared except for parishes with very high proportion of rural population. (See Table 10)

In the study of mortality in the 64 parishes, nevertheless, a great deal of variation exists. It appears that if the mortality in the parishes with the highest rates were to be decreased to those in the parishes with the lowest rates, then mortality rates in Louisiana would be quite a good deal lower than the average for the United States. The problem is, therefore, to discover what forces are operating in the parishes with the highest and in those with the lowest rates. If this were known, then it would become possible to pinpoint the public health efforts in each parish in order to develop and maintain the best

[1] 1872. Slaughter House Cases
1886. Louisiana State Board of Health vs. Morgan's Texas Railroad & Steamship Co.

status of health, and also to set priorities for places and programs.

THE PLAN OF ANALYSIS

A cursory examination of the data in Table 1 for the 64 parishes, listed in alphabetical order, makes it quite evident that the maze of figures gives very little aid in discerning any pattern in the mortality forces. If similar tables were constructed, giving data on socio-economic factors, the same obscurity would be evident. The problem, therefore, is to select a method of analysis in which:

1. The identity of each parish is maintained in relation to other parishes and in relation to the many variable factors.
2. The multiple factors do not hide relationships of the parishes insofar as they have a strong or weak overall force of mortality or health.
3. The overall force of health can be compared with the overall force of mortality in each parish and in the interrelationships between parishes.
4. Patterns of interrelationships can be brought to light.

In order to meet these conditions, a technique for computing a single cumulative Index of Mortality and a single cumulative Index of Health for each parish was used. (See Tables 2 and 21). Because these indices are composites of a number of apparently related variables, and because these variables also have a certain degree of independence in their operation from parish to parish, and furthermore, because some of the variants may manifest themselves in extreme degrees of divergence, and finally, because there may be a certain amount of unavoidable inaccuracies in the data resulting from presently uncontrolled aspects of collecting such data, a method of comparison was used which tended to suppress the effect of such inaccuracies and extreme variablities by dilution, namely, the quartile grouping of parishes. This method is predicated on the premise that the degree of interdependence of the socio-economic factors in the dynamic bio-social whole is at least as great as the degree of divergence possible due to their independence. It would, therefore, be expected that most of the factors conducive to greater mortality would be highest in the quartile of parishes with the highest mortality rates, and correspondingly lower in the quartiles with successively lower forces of mortality. By using the quartile method, therefore, the direction of the force of each factor can be elicited despite the scatter of the data.

THE ANALYSIS

The point that the *physical* health of a population is inversely related to the rate of its mortality, and that infant mortality is one of the most sensitive of physical health indices need not be belabored here. However, it is well known that some factors having high degrees of sensitivity may also bear certain losses of specificity, particularly in short-term or cross-sectional studies, as this one is. Anyone working with infant mortality rates is well aware that this is such a factor. It is, therefore, desirable, for this study, to create a measure of the force of mortality that would retain as much sensitivity as possible and still be within the limits of validity for specificity. It is hoped that this could be accomplished by using 5-year average mortality data, by including a number of recognized basic mortality factors into *one cumulative* index number to represent the *force of mortality,* and by giving to each factor such a weight as would tend to balance the sensitivity and specificity in the final cumulative index number. It is also hoped that a somewhat similar approach could be used in arriving at what might be called the *cumulative health index* or *cumulative force of health.* The above technique was carried out as noted in Tables 2 and 3, by designating numerically the positions of each parish for each type of death rate from highest to lowest, and calculating the average of all these positions. The average, or index number, for each parish is its cumulative force of mortality. In the same manner, as noted in Table 21, the cumulative force of health was calculated for each parish.

Such a sensitive factor as infant mortality was given extra weight in the calculation of the cumulative force of mortality by including the three of the special phases of infant mortality into the average, namely, neonatal mortality, deaths under one day, and deaths due to prematurity. The other rates included into the average are for stillbirths, maternal deaths, and crude deaths.

The social factors relating to the force of mortality and the force of health lend themselves to classification into 2 groups, namely, the socio-economic factors and socio-medical factors. In order to find out to what extent the individual factors in these two groups correlate to the cumulative force of mortality, the quartile method was applied, as explained above.

EXPLANATION OF TABULAR TECHNIQUE

Table 5 shows the application of the quartile method of analysis whereby the various levels of the median incomes of the parishes are related to the parishes arranged in accordance with their cumulative force of mortality from the highest to the lowest index number. Such a table is somewhat difficult to interpret unless close attention be paid to the arrangement pattern. Thus the figure, 10 parishes, in the first quartile along the line designated as $1,200 is interpreted as follows: There are 10 parishes in the quartile of the 16 parishes with the highest indices of cumulative forces of mortality in which the median annual incomes of the families are less than $1,200. The rest of the quantities are correspondingly interpreted. It will be noted that the quantities in each column are cumulative, so that if the levels of median annual income were extended to as high as $3,000, the last quantities in each of the four columns would include all the parishes in each quartile, i.e., each quantity would be 16 parishes. This cumulative method appears to show the relationship between the quartiles better than if the quantities were not designated as cumulative. As pointed out above, this method of dealing with parishes in groups appears to elicit more easily whatever pattern of relationships that may exist in a long list of numbers having a good deal of scatter, if such relationships do indeed exist. This is observed by examining Table 4 in column entitled "Median Income in Dollars," and then examining Table 5 in which the analysis is made by the grouping method.

The rest of the tables, similarly organized, are interpreted in a similar manner. The conclusion derived from each such table is given just below each table.

It should also be noted that in Table 21, although the parishes are arranged from highest to lowest cumulative forces of mortality, the index numbers for the cumulative health forces have inverse values, i.e., the lower the number the lower the cumulative health forces.

INTERPRETATION OF TABLES

Table 5 shows that there appears to be a fairly evident correlation between the median annual income level of families in a parish and its mortality forces, i.e., the higher the income level, the lower the mortality. It also shows that a median annual income level of $1,600 is the critical level in Louisiana since most of the parishes with high mortality forces have median annual income levels below this figure.

Table 6 gives corollary evidence to that of Table 5. It shows that the forces of mortality are critically reduced in most of the parishes where at least 65 per cent of the families have median annual incomes of $2,000 or more.

Table 7 shows that the greater the dilapidation of houses in a parish the greater should we expect the forces of mortality to be. It shows also that most of the parishes with lower forces of mortality have less than 25 per cent of their houses dilapidated.

Table 8 gives corollary evidence to that of Table 7. It shows that most parishes having lower forces of mortality have higher percentages of their houses provided with private toilets, baths, and hot or cold running water. It also shows that most of the parishes with higher forces of mortality have less than 30 per cent of

their houses provided with these sanitary facilities.

Table 9 shows that under conditions now prevalent in Louisiana the force of mortality can be expected to be greater in those parishes with higher proportions of Negro population. Most of the parishes with higher forces of mortality have populations with more than 35 per cent Negro population.

Table 10 shows that the proportion of rural population in parishes has little if any relation to the forces of mortality, except possibly where the proportion of rural population is very high, there is a tendency also for the forces of mortality to be increased.

Table 11 shows some correlation between the trend of decreasing population and that of increasing forces of mortality. Since decreasing population is ordinarily associated with economic stagnation or deterioration, the latter could be interpreted as being the germain cause influencing the increase in the forces of mortality. The correlation begins to become evident where the decreases in population during the decennial are greater than 5 per cent.

Table 12 shows that parishes having larger proportions of older people (i.e., 65 years or older) can be expected to have higher cumulative forces of mortality. Most of the parishes with higher forces of mortality have more than 7 per cent of their populations in the older age-group.

Table 13 shows that there is scarcely any relation between the population size of parishes and their forces of mortality.

Table 14 shows that there is practically no relationship between the per capita assessed valuation in parishes and their forces of mortality.

Table 15 shows that the higher the per cent of deliveries taking place in hospitals the lower the forces of mortality. Most of the parishes with higher forces of mortality have less than 85 to 90 per cent of their deliveries in hospitals. This appears to be the *critical level* below which mortality increases significantly.

Table 16 shows that the percentage of deliveries attended by physicians appears to influence the force of mortality fairly well. When parishes have more than 90 per cent of deliveries attended by physicians, there is a strong tendency for them to be among the parishes with lower forces of mortality.

Table 18 shows that, when deliveries in State Hospitals are excepted, there appears to be only a slight indication that the per cent of deliveries attended by physicians influence the forces of mortality. When, however, deliveries in State Hospitals are included (see Tables 15 and 16), a definite relationship between medical care and the force of mortality becomes evident, i.e., the higher the percentage of deliveries attended by physicians, the lower the forces of mortality. It may, therefore, be assumed that the State Hospital system adds enough weight to the medical efforts in the State to influence effectively the lowering of the force of mortality.

Table 19 shows that, under the conditions prevailing in Louisiana, the ratio of population per hospital bed in parishes does not appear as a factor influencing the force of mortality. This, of course, does not mean that the ratio of hospital beds per unit of population is not an important health index. It appears to indicate, as manifested in Table 18, that the regional distribution of state hospitals precludes a comparison between parishes. This is so because the state hospitals take care of 25 to 50 per cent of the deliveries in neighboring parishes for a distance of about a 40 mile radius if the roads are good from the populated areas of the neighboring parishes to the state hospital. This study also shows that when more than one state hospital is within a 40 mile radius of a population group, there is a tendency for the deliveries to be distributed among them, the larger hospital drawing the larger number. For a large hospital like Charity Hospital in New Orleans, the drawing distance for 25 to 50 per cent of the deliveries of the neighbor-

ing parishes is increased to a radius of 60 miles. If the distance is increased to a radius of 120 miles, the drawing strength is reduced to 10 to 20 per cent. There are certain exceptions to this, for example, the Charity Hospital in New Orleans took care of 32 per cent of the deliveries of Jackson Parish in 1955 although the distance is about 300 miles.

Table 20 shows that the ratio of population per physician in parishes, under conditions prevailing in Louisiana, does not appear to influence the force of mortality. This is probably due to the availability of medical care at state hospitals, and to the ample use of medical practitioners across parish lines. However, the force of mortality tends to be lower in those parishes where the ratio of population per physician is less than 2,250 persons per physician. In a cross-sectional (or static) study such as this, the relation of population unit per physician would not be expected to show as strongly positive a correlation as in a study of trend covering a relatively long interval of time.

Table 23 shows that, under conditions prevailing in Louisiana, there is scarcely any correlation between the forces of mortality in a parish and the median number of school years completed in the population of 25 years of age and over. This does not mean that the education level of a population does not influence its forces of mortality. The real reason for the lack of correlation in Louisiana is not certain. It may be due to the fact that the education level over the State has been raised above the critical level where lack of education becomes a significant factor influencing health.

Table 22 is an attempt to relate the force of mortality in each parish to its force of health in order to determine which parishes manifest worse health conditions than expected, and which manifest better health conditions than expected. It is interesting to note that the first nine parishes in the table which have the poorest force of health are also among those which show the strongest force of mortality. There are 23 other parishes which show a similar correspondence between the forces of health and the forces of mortality. In half of the parishes, therefore, the level of the health forces corresponds to the level of the mortality forces. In the other 32 parishes a discrepancy between these forces appears to exist or is suspected to exist. In 18 of these parishes the health conditions appear better than expected, and in 14 parishes the health conditions appear worse than expected. The results in this table, therefore, point the way for setting priorities and pinpointing further actions by the health department.

Any interpretation of statistical data must be carefully considered. It must be borne in mind that this is a cross-sectional study, the findings being related to circumstances pertaining only to the present. This being the case, factors which would be expected to correlate significantly with health and ill-health when considered in a long flow of time, such as level of education, population per physician, and population per hospital bed, show no evidence of effectual relationship. There are indeed many reasons why the correlation of certain factors in the light of historical trend may manifest strong significance while in a cross-sectional study may appear unimportant.

CONCLUSION

The technique used in this study has served as a satisfactory instrument in dealing with many health jurisdictions and many variable factors and yet not using too much detail as relates to the individual factors and places. It, therefore, is useful in program planning for setting priorities for further study and action, i.e., it gives the health administrator a tool for pinpointing programs.

The study should be considered an *interim report,* since it is obvious that the present analysis has not exhausted the variable factors that still need to be studied. The relationship between health conditions, on the one hand, and particular

(Continued on page 92)

TABLE 1
VARIOUS MORTALITY RATES IN LOUISIANA
1951-1955 AVERAGE

	Parishes Arranged in Alphabetical Order	Infant Mortality per 1,000 Live Births	Neonatal Mortality per 1,000 Live Births	Infant Deaths Under 1 Day per 1,000 Live Births	Deaths Due to Immaturity per 1,000 Live Births	Stillbirths per 1,000 Live Births	Maternal Deaths per 100,000 Live Births	Deaths per 1,000 Population
01	Acadia	32.3	20.6	10.3	8.3	20.6	68.8	7.9
02	Allen	33.0	22.6	12.2	5.2	17.4	34.8	8.4
03	Ascension	31.0	19.2	11.8	4.4	23.6	59.1	9.6
04	Assumption	33.7	15.8	7.9	2.0	21.8	158.3	9.9
05	Avoyelles	30.4	18.6	8.8	7.9	22.6	137.3	8.2
06	Beauregard	34.7	24.3	10.4	10.4	19.1	242.6	8.9
07	Bienville	38.5	28.8	12.0	9.6	31.3	0.0	9.8
08	Bossier	26.2	18.3	9.1	7.9	15.8	24.4	6.7
09	Caddo	31.3	22.6	11.5	11.4	20.6	66.8	8.9
10	Calcasieu	29.3	20.5	10.7	7.9	17.8	60.2	7.1
11	Caldwell	34.5	25.9	8.6	8.6	21.6	86.3	8.6
12	Cameron	33.8	27.0	13.5	6.8	20.3	0.0	6.9
13	Catahoula	26.9	21.0	6.0	3.0	15.0	0.0	9.1
14	Claiborne	29.8	19.8	11.9	9.9	27.8	39.7	8.2
15	Concordia	47.3	31.6	15.8	9.9	19.7	118.3	12.1
16	DeSoto	38.8	26.9	13.4	10.4	22.4	149.3	11.4
17	E. Baton Rouge	24.7	17.5	9.1	4.9	17.7	60.8	6.4
18	E. Carroll	45.4	25.6	11.8	9.9	27.6	197.1	11.7
19	E. Feliciana	42.0	28.0	11.7	7.0	21.0	93.3	7.2
20	Evangeline	45.9	21.8	10.9	7.3	19.3	145.0	7.4
21	Franklin	39.2	20.2	10.1	9.0	19.1	89.6	8.2
22	Grant	36.7	24.5	9.2	9.2	15.3	61.1	9.3
23	Iberia	37.0	22.8	13.4	7.1	22.8	110.2	8.4
24	Iberville	43.0	27.8	15.2	7.6	26.6	177.2	11.3
25	Jackson	29.4	18.7	10.7	5.3	24.1	160.3	8.8
26	Jefferson	21.3	16.0	8.5	4.8	15.5	43.5	6.7
27	Jefferson Davis	27.8	18.1	9.7	4.8	19.3	96.8	7.8
28	Lafayette	38.2	20.9	11.2	7.6	19.4	40.8	7.4
29	Lafourche	28.4	19.7	10.2	5.8	21.9	116.6	7.3
30	LaSalle	33.5	24.4	15.2	9.1	18.3	121.8	8.4
31	Lincoln	28.6	20.2	10.1	8.4	25.3	134.7	7.4
32	Livingston	30.6	21.6	12.6	9.0	19.8	72.1	7.1
33	Madison	49.8	31.4	14.8	11.1	31.4	147.7	10.5
34	Morehouse	42.0	28.0	12.2	11.4	24.5	192.5	8.7
35	Natchitoches	40.1	25.7	10.3	9.3	28.8	82.3	8.7
36	Orleans	28.9	22.4	12.3	6.4	20.0	49.1	10.7
37	Ouachita	33.6	23.9	11.7	10.5	23.5	113.3	9.4
38	Plaquemines	25.9	18.5	9.2	7.4	14.8	147.9	7.3
39	Pointe Coupee	37.6	25.0	11.0	7.8	28.2	250.5	9.7
40	Rapides	31.9	21.6	9.9	7.7	19.1	80.7	8.5
41	Red River	47.1	30.3	13.5	16.8	26.9	403.5	9.7
42	Richland	47.2	33.4	17.3	12.7	25.3	161.0	9.4
43	Sabine	33.3	25.0	12.5	6.3	20.8	83.4	8.1
44	St. Bernard	27.6	20.7	13.8	5.2	20.7	34.5	9.2
45	St. Charles	23.3	15.6	9.7	3.9	17.5	77.9	8.0
46	St. Helena	48.1	26.7	16.0	5.3	21.4	0.0	7.3
47	St. James	44.7	29.2	15.6	3.9	23.3	77.8	10.8
48	St. John	36.5	21.1	9.6	3.8	17.3	76.8	9.7
49	St. Landry	41.3	21.8	10.1	7.3	25.5	56.6	7.6
50	St. Martin	37.3	19.8	11.7	7.0	24.5	163.1	7.7
51	St. Mary	38.0	21.5	10.7	4.1	26.4	115.7	10.0
52	St. Tammany	31.4	20.6	10.9	7.3	16.9	48.4	10.3
53	Tangipahoa	30.7	20.7	11.8	5.9	24.2	59.1	9.0
54	Tensas	42.8	25.2	10.1	12.6	30.2	252.1	11.7
55	Terrebonne	30.9	21.4	12.6	6.3	24.0	12.6	7.7
56	Union	33.1	21.3	11.8	9.5	28.4	0.0	8.1
57	Vermilion	29.1	21.9	9.4	6.2	13.5	104.0	7.4
58	Vernon	32.3	22.5	12.7	8.4	19.7	112.5	10.0
59	Washington	34.7	23.9	11.6	9.1	20.6	115.6	8.7
60	Webster	32.9	25.2	14.5	12.6	23.3	58.2	7.9
61	W. Baton Rouge	36.1	21.1	9.0	6.0	27.1	0.0	9.8
62	W. Carroll	33.9	20.4	9.0	6.8	27.1	226.4	7.6
63	W. Feliciana	50.6	35.0	19.5	11.8	27.2	77.7	9.4
64	Winn	28.0	19.6	11.2	11.2	19.6	0.0	8.3
	Louisiana State Average	32.0	21.8	11.2	7.5	20.9	80.2	9.0
	United States 1950-54 Average	28.0	20.5	9.8	6.3	18.3	68.0	9.5

TABLE 2

POSITION OF EACH PARISH ACCORDING TO TYPE OF DEATH RATE FROM HIGHEST TO LOWEST RATES, AND THE POSITION OF EACH PARISH ACCORDING TO THE CUMULATIVE MORTALITY FORCE (INDEX NUMBER) FROM HIGHEST TO LOWEST; BASED ON 5 YEAR AVERAGES, 1951-1955.

	Parishes Arranged in Alphabetical Order	Infant Mortality, Position	Neonatal Mortality, Position	Infant Deaths Under 1 day, Position	Death Due to Immaturity, Position	Stillbirth, Position	Maternal Death, Position	Crude Death, Position	Cumulative Mortality Forces: Index Number*
01	Acadia	40	45	42	27	38	40	44	39.4
02	Allen	37	28	21	54	56	54	34	40.6
03	Ascension	44	55	25	58	23	45	18	38.3
04	Assumption	32	63	63	64	31	12	12	39.6
05	Avoyelles	48	57	60	30	28	17	38	39.7
06	Beauregard	27	21	41	11	49	4	26	25.6
07	Bienville	18	7	22	16	2	58	13	19.4
08	Bossier	60	59	56	29	59	56	62	54.4
09	Caddo	43	27	32	6	37	41	27	30.4
10	Calcasieu	51	47	39	28	53	44	59	45.9
11	Caldwell	29	14	61	24	32	31	32	31.9
12	Cameron	31	11	12	43	40	59	61	36.7
13	Catahoula	59	41	64	63	62	60	24	53.3
14	Claiborne	49	51	23	13	7	53	39	33.6
15	Concordia	4	3	4	14	43	20	1	12.7
16	DeSoto	17	12	13	12	29	13	4	14.3
17	E. Baton Rouge	62	61	57	55	54	43	64	56.6
18	E. Carroll	8	16	24	15	8	6	2	11.3
19	E. Feliciana	13	8	28	41	34	29	58	30.1
20	Evangeline	7	32	36	38	48	16	51	32.6
21	Franklin	16	49	48	23	50	30	40	36.6
22	Grant	24	22	54	19	61	42	22	34.9
23	Iberia	23	26	14	39	27	26	35	27.1
24	Iberville	10	10	6	34	13	8	5	12.3
25	Jackson	50	56	38	52	21	11	28	36.7
26	Jefferson	64	62	62	57	60	51	63	59.9
27	Jefferson Davis	57	60	50	56	47	28	46	49.1
28	Lafayette	19	42	33	33	46	52	52	39.6
29	Lafourche	55	53	44	50	30	21	55	44.0
30	LaSalle	34	23	7	21	52	19	36	27.4
31	Lincoln	54	50	47	26	17	18	53	37.9
32	Livingston	47	34	16	22	42	39	60	37.1
33	Madison	2	4	8	9	1	15	8	6.7
34	Morehouse	12	9	20	7	18	7	29	14.6
35	Natchitoches	15	15	43	18	4	33	30	22.6
36	Orleans	53	30	19	44	41	49	7	34.7
37	Ouachita	33	25	29	10	24	24	19	23.4
38	Plaquemines	61	58	55	35	63	14	56	48.9
39	Pointe Coupee	22	19	35	31	6	3	15	18.7
40	Rapides	41	35	49	32	51	34	33	39.3
41	Red River	6	5	11	1	12	1	16	7.4
42	Richland	5	2	2	2	16	10	20	8.1
43	Sabine	35	20	18	46	35	32	41	32.4
44	St. Bernard	58	43	10	53	36	55	23	39.7
45	St. Charles	63	64	51	61	55	35	43	53.1
46	St. Helena	3	13	3	51	33	61	57	31.6
47	St. James	9	6	5	60	25	36	6	21.0
48	St. John	25	38	52	62	57	38	17	41.3
49	St. Landry	14	33	46	37	15	47	49	34.4
50	St. Martin	21	52	30	40	19	9	47	31.1
51	St. Mary	20	36	40	59	14	22	10	28.7
52	St. Tammany	42	46	37	36	58	50	9	39.7
53	Tangipahoa	46	44	26	49	20	46	25	36.6
54	Tensas	11	17	45	4	3	2	3	12.1
55	Terrebonne	45	37	17	45	22	57	48	38.7
56	Union	36	39	27	17	5	62	42	32.6
57	Vermilion	52	31	53	47	64	27	54	46.9
58	Vernon	39	29	15	25	44	25	11	26.9
59	Washington	28	24	31	20	39	23	31	28.0
60	Webster	38	18	9	3	26	48	45	26.7
61	W. Baton Rouge	26	40	59	48	11	63	14	37.3
62	W. Carroll	30	48	58	42	10	5	50	34.7
63	W. Feliciana	1	1	1	5	9	37	21	10.1
64	Winn	56	54	34	8	45	64	37	42.6

* Index Number is calculated by averaging the position numbers of each parish.

TABLE 3
POSITION OF EACH PARISH ACCORDING TO THE CUMULATIVE FORCE OF MORTALITY (INDEX NUMBER) PREVAILING FOR THE FIVE-YEAR PERIOD, 1951-1955, FROM HIGHEST RISK OF DEATH TO THE LOWEST.

	Parishes Arranged in the order of their **Cumulative Force of Mortality** from **Highest** to **Lowest**	Cumulative Mortality Forces Index Number*	Infant Mortality, Position	Neonatal Mortality, Position	Infant Deaths Under 1 day, Position	Deaths due to Immaturity, Position	Stillbirths, Position	Maternal Deaths, Position	Crude Deaths, Position
01	Madison	6.7	2	4	8	9	1	15	8
02	Red River	7.4	6	5	11	1	12	1	16
03	Richland	8.1	5	2	2	2	16	10	20
04	West Feliciana	10.1	1	1	1	5	9	37	21
05	East Carroll	11.3	8	16	24	15	8	6	2
06	Tensas	12.1	11	17	45	4	3	2	3
07	Iberville	12.3	10	10	6	34	13	8	5
08	Concordia	12.7	44	33	4	14	43	20	1
09	DeSoto	14.3	17	12	13	12	29	13	4
10	Morehouse	14.6	12	9	20	7	18	7	29
11	Pointe Coupee	18.7	22	19	35	31	6	3	15
12	Bienville	19.4	18	7	22	16	2	58	13
13	St. James	21.0	9	6	5	60	25	36	6
14	Natchitoches	22.6	15	15	43	18	4	33	30
15	Ouachita	23.4	33	25	29	10	24	24	19
16	Beauregard	25.6	27	21	41	11	49	4	26
17	Webster	26.7	38	18	9	3	26	48	45
18	Vernon	26.9	39	29	15	25	44	25	11
19	Iberia	27.1	23	26	14	39	27	26	35
20	LaSalle	27.4	34	23	7	21	52	19	36
21	Washington	28.0	28	24	31	20	39	23	31
22	St. Mary	28.7	20	36	40	59	14	22	10
23	East Feliciana	30.1	13	8	28	41	34	29	58
24	Caddo	30.4	43	27	32	6	37	41	27
25	St. Martin	31.1	21	52	30	40	19	9	47
26	St. Helena	31.6	3	13	3	51	33	61	57
27	Caldwell	31.9	29	14	61	24	32	31	32
28	Sabine	32.4	35	20	18	46	35	32	41
29	Union	32.6	36	39	27	17	5	62	42
30	Evangeline	32.6	7	32	36	38	48	16	51
31	Claiborne	33.6	49	51	23	13	7	53	39
32	St. Landry	34.4	14	33	46	37	15	47	49
33	West Carroll	34.7	30	48	58	42	10	5	50
34	Orleans	34.7	53	30	19	44	41	49	7
35	Grant	34.9	24	22	54	19	61	42	22
36	Franklin	36.6	16	49	48	23	50	30	40
37	Tangipahoa	36.6	46	44	26	49	20	46	25
38	Jackson	36.7	50	56	38	52	21	11	28
39	Cameron	36.7	31	11	12	43	40	59	61
40	Livingston	37.1	47	34	16	22	42	39	60
41	W. Baton Rouge	37.3	26	40	59	48	11	63	14
42	Lincoln	37.9	54	50	47	26	17	18	53
43	Ascension	38.3	44	55	25	58	23	45	18
44	Terrebonne	38.7	45	37	17	45	22	57	48
45	Rapides	39.3	41	35	49	32	51	34	33
46	Acadia	39.4	40	45	42	27	38	40	44
47	Assumption	39.6	32	63	63	64	31	12	12
48	Lafayette	39.6	19	42	33	33	46	52	52
49	St. Bernard	39.7	58	43	10	53	36	55	23
50	St. Tammany	39.7	42	46	37	36	58	50	9
51	Avoyelles	39.7	48	57	60	30	28	17	38
52	Allen	40.6	37	28	21	54	56	54	34
53	St. John	41.3	25	38	52	62	57	38	17
54	Winn	42.6	56	54	34	8	45	64	37
55	Lafourche	44.0	55	53	44	50	30	21	55
56	Calcasieu	45.9	51	47	39	28	53	44	59
57	Vermilion	46.9	52	31	53	47	64	27	54
58	Plaquemines	48.9	61	58	55	35	63	14	56
59	Jefferson Davis	49.1	57	60	50	56	47	28	46
60	St. Charles	53.1	63	64	51	61	55	35	43
61	Catahoula	53.3	59	41	64	63	62	60	24
62	Bossier	54.4	60	59	56	29	59	56	62
63	E. Baton Rouge	56.6	62	61	57	55	54	43	64
64	Jefferson	59.9	64	62	62	57	60	51	63

* Index Number is calculated by averaging the position numbers of each parish.

TABLE 4
SOCIO-ECONOMIC FACTORS
RELATED TO THE CUMULATIVE FORCE OF MORTALITY IN EACH PARISH IN LOUISIANA.

Parishes Listed According to their Cumulative Force of Mortality Indices, From Highest to Lowest Index		Families and unrelated Individuals 1950		% Dilapidated Houses, 1950	% of Houses with Private Toilets, Baths, and Hot or Cold Running Water—1950	% Negro Population July 1, 1950
		Median Income Dollars	% Having incomes Less than $2,000			
	See Tables 2 and 3	See Table 5	See Table 6	See Table 7	See Table 8	See Table 9
01	Madison	982	77.7	40.6	15.3	66.2
02	Red River	1030	75.6	29.1	12.5	50.0
03	Richland	1224	68.6	39.7	20.0	41.0
04	West Feliciana	1100	76.4	53.6	18.7	71.2
05	East Carroll	835	81.4	25.7	13.3	61.1
06	Tensas	840	77.5	51.4	15.1	64.8
07	Iberville	1381	64.6	34.5	28.3	48.9
08	Concordia	1058	72.3	7.8	19.6	59.3
09	DeSoto	1164	71.5	25.3	23.7	56.6
10	Morehouse	1533	57.7	24.9	26.5	48.2
11	Pointe Coupee	1124	73.8	36.7	22.1	53.7
12	Bienville	1272	70.1	35.0	18.6	49.2
13	St. James	1118	73.0	30.9	22.9	50.0
14	Natchitoches	965	75.7	30.9	19.5	44.9
15	Ouachita	2052	49.0	15.2	45.2	33.0
16	Beauregard	1573	61.8	16.8	34.0	17.0
17	Webster	1920	51.9	20.4	42.8	36.5
18	Vernon	1089	73.6	24.7	25.4	11.7
19	Iberia	1835	53.5	23.4	46.0	32.4
20	LaSalle	1613	58.7	12.1	27.8	11.2
21	Washington	1679	56.9	28.2	38.9	31.5
22	St. Mary	1831	53.7	31.6	38.3	38.3
23	East Feliciana	1007	75.8	36.3	19.8	23.9
24	Caddo	2157	47.3	18.2	54.5	37.6
25	St. Martin	1316	67.4	20.4	22.5	37.0
26	St. Helena	1058	73.3	40.6	12.7	53.1
27	Caldwell	1355	69.3	27.9	18.4	28.5
28	Sabine	1214	72.8	27.0	15.2	20.6
29	Union	1473	64.9	42.7	19.1	34.6
30	Evangeline	1247	69.2	24.0	25.5	23.9
31	Claiborne	1458	60.8	31.4	30.0	51.7
32	St. Landry	1242	69.9	27.2	26.7	44.6
33	West Carroll	1064	77.4	18.5	12.2	18.1
34	Orleans	2267	44.4	14.7	74.7	32.0
35	Grant	1194	70.8	18.2	13.8	24.2
36	Franklin	1224	69.8	36.6	14.9	36.7
37	Tangipahoa	1204	70.7	36.4	32.4	31.2
38	Jackson	1876	52.6	17.5	31.6	29.8
39	Cameron	2090	47.6	16.5	27.4	9.3
40	Livingston	1645	56.5	24.1	27.9	14.7
41	West Baton Rouge	1437	59.9	30.0	30.1	53.2
42	Lincoln	1212	66.9	24.3	36.2	40.2
43	Ascension	1410	61.7	27.6	30.6	35.4
44	Terrebonne	1901	52.1	20.6	39.4	24.6
45	Rapides	1690	57.0	17.8	43.7	33.2
46	Acadia	1563	61.1	20.0	35.0	19.1
47	Assumption	1169	75.7	25.6	20.0	41.8
48	Lafayette	1680	57.1	16.3	52.5	27.2
49	St. Bernard	2020	49.6	19.3	52.6	14.6
50	St. Tammany	1446	64.2	13.8	49.4	29.4
51	Avoyelles	1215	72.2	28.3	23.5	26.1
52	Allen	1634	59.1	18.8	29.7	24.2
53	St. John	1707	56.7	13.0	25.0	49.9
54	Winn	1315	70.5	21.4	21.4	27.4
55	Lafourche	1920	52.0	19.6	37.2	13.5
56	Calcasieu	2668	37.8	15.5	55.2	23.0
57	Vermilion	1269	68.2	22.2	33.2	12.7
58	Plaquemines	2197	45.9	26.9	35.9	38.7
59	Jefferson Davis	1656	57.9	17.7	37.3	21.6
60	St. Charles	1907	51.7	17.9	38.1	32.6
61	Catahoula	1109	75.6	12.0	12.8	35.1
62	Bossier	1744	54.5	25.8	44.1	34.7
63	East Baton Rouge	2618	41.0	11.5	70.0	33.3
64	Jefferson	2762	32.3	14.0	68.4	15.7
	Total	1810	53.9	21.3	47.2	33.0

TABLE 4—(Continued)
SOCIO-ECONOMIC FACTORS
RELATED TO THE CUMULATIVE FORCE OF MORTALITY IN EACH PARISH IN LOUISIANA.

	Parishes Listed According to their Cumulative Force of Mortality Indices, From Highest to Lowest Index	% Rural Population July 1, 1950	Estimated Population Increase or Decrease 1940 to 1950 in %	% Population 65 years and Older—1950	Population July 1, 1956	Assessed Valuations Per Capita 1956
	See Tables 2 and 3	See Table 10	See Table 11	See Table 12	See Table 13	See Table 14
01	Madison	55.5	−5.4	7.7	16,828	971
02	Red River	100.0	−23.7	8.7	9,758	742
03	Richland	88.3	−7.5	6.4	25,322	688
04	West Feliciana	100.0	−13.2	6.8	9,201	458
05	East Carroll	74.7	−14.3	8.1	14,599	744
06	Tensas	100.0	−17.1	9.3	11,499	750
07	Iberville	78.6	−3.5	8.6	26,142	646
08	Concordia	73.3	−1.1	7.9	14,293	723
09	DeSoto	81.8	−23.3	9.6	19,770	832
10	Morehouse	60.1	16.2	6.4	34,828	996
11	Pointe Coupee	87.1	−9.0	8.1	20,491	647
12	Bienville	100.0	−20.2	8.8	16,090	893
13	St. James	100.0	−7.6	8.2	14,546	734
14	Natchitoches	74.0	−7.0	8.1	36,359	676
15	Ouachita	34.6	26.3	6.7	84,426	1,093
16	Beauregard	67.4	19.7	7.8	19,589	874
17	Webster	63.2	6.0	6.7	36,972	974
18	Vernon	75.4	−0.9	8.5	36,419	350
19	Iberia	47.1	7.7	6.1	41,859	1,002
20	LaSalle	100.0	16.0	7.3	13,812	827
21	Washington	53.6	11.4	5.6	40,824	661
22	St. Mary	48.4	14.0	7.2	38,593	1,212
23	East Feliciana	64.6	6.1	10.7	19,816	393
24	Caddo	24.4	17.5	6.8	193,010	1,676
25	St. Martin	82.5	−0.2	5.7	26,330	469
26	St. Helena	100.0	−5.5	7.5	8,683	544
27	Caldwell	100.0	−14.6	8.6	9,198	844
28	Sabine	100.0	−11.5	8.0	19,192	544
29	Union	100.0	−8.6	7.7	18,016	802
30	Evangeline	79.0	3.7	4.8	32,334	616
31	Claiborne	68.9	−16.1	7.9	22,070	975
32	St. Landry	74.7	9.8	5.1	82,849	531
33	West Carroll	100.0	−10.4	6.7	15,995	572
34	Orleans	0.0	15.3	7.1	617,890	1,337
35	Grant	100.0	−10.5	9.0	13,220	600
36	Franklin	87.6	−9.3	6.2	27,501	536
37	Tangipahoa	72.0	16.9	7.0	58,033	405
38	Jackson	79.9	−13.3	7.2	13,949	868
39	Cameron	100.0	−13.3	6.0	5,644	1,990
40	Livingston	100.0	12.7	5.8	21,472	432
41	West Baton Rouge	73.6	4.2	7.4	12,038	833
42	Lincoln	59.8	4.0	7.3	26,405	638
43	Ascension	81.5	5.5	7.7	23,122	617
44	Terrebonne	62.3	20.8	5.4	47,986	782
45	Rapides	54.4	23.5	7.0	101,448	497
46	Acadia	52.9	1.7	5.8	47,545	899
47	Assumption	100.0	−6.8	8.1	16,490	648
48	Lafayette	42.0	31.4	5.0	66,368	523
49	St. Bernard	76.2	52.3	4.9	13,465	2,173
50	St. Tammany	68.2	14.2	8.5	29,088	717
51	Avoyelles	78.2	−3.1	7.1	37,266	497
52	Allen	70.3	7.4	6.4	19,645	554
53	St. John	70.0	0.6	6.9	14,921	760
54	Winn	65.0	−4.8	8.5	15,616	649
55	Lafourche	75.0	9.3	5.4	44,452	773
56	Calcasieu	27.8	58.6	4.9	110,343	1,324
57	Vermilion	62.3	−2.2	6.3	36,419	645
58	Plaquemines	100.0	15.6	5.3	15,439	2,584
59	Jefferson Davis	52.4	8.7	6.5	27,618	1,042
60	St. Charles	74.9	8.5	6.2	14,016	1,566
61	Catahoula	100.0	−19.0	7.7	10,094	680
62	Bossier	58.2	21.0	5.1	44,497	802
63	East Baton Rouge	14.2	79.0	4.7	201,871	1,863
64	Jefferson	11.2	106.0	4.2	137,278	769
	Total	45.2	13.5	6.6	2,883,302	1,029

TABLE 5
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE MEDIAN ANNUAL INCOMES OF FAMILIES IN EACH PARISH, 1950.

Median Annual Incomes of Families in Each Parish with less than	Parishes arranged in 4 Quartiles (16 parishes in each Quartile), from Highest to Lowest Index of the forces of Mortality			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
$1,200	10 parishes	3 parishes	3 parishes	1 parish
1,300	12 parishes	6 parishes	6 parishes	3 parishes
1,600	15 parishes	10 parishes	9 parishes	5 parishes
1,800	15 parishes	12 parishes	12 parishes	9 parishes
2,100	16 parishes	15 parishes	15 parishes	12 parishes

There appears to be a **fairly evident correlation** between the level of the **median annual income of the families** in a parish and the force of mortality. The higher the median annual income level, the less is the force of mortality. It appears, however, that a median annual income of **$1,600** is the **critical level** in Louisiana below which most of the parishes with high forces of mortality are found.

TABLE 6
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENTAGE OF FAMILIES IN EACH PARISH WITH INCOMES LOWER THAN $2,000, 1950.

Percentage of Families in Each Parish with Incomes Lower Than $2,000 in Less Than	Parishes Arranged in 4 Quartiles (16 parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Force of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
50% of Families	1 parish	1 parish	2 parishes	5 parishes
55% of Families	1 parish	4 parishes	4 parishes	8 parishes
60% of Families	2 parishes	6 parishes	8 parishes	11 parishes
65% of Families	3 parishes	8 parishes	10 parishes	12 parishes
70% of Families	4 parishes	12 parishes	12 parishes	13 parishes
75% of Families	10 parishes	15 parishes	14 parishes	15 parishes

It appears that, under the conditions prevailing in Louisiana, **the force of mortality is critically reduced where at least 65% of the families have median annual incomes of $2,000 or more,** since most of the parishes with lower forces of mortality are found among those with **less than 65%** of their families having annual incomes that are lower than $2,000.

TABLE 7
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENTAGE LEVEL OF DILAPIDATED HOUSES IN EACH PARISH, 1950.

Percentage of Dilapidated Houses in Each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
20%	3 parishes	2 parishes	7 parishes	11 parishes
25%	4 parishes	7 parishes	11 parishes	13 parishes
30%	7 parishes	11 parishes	13 parishes	16 parishes
35%	10 parishes	13 parishes	14 parishes	16 parishes
40%	13 parishes	14 parishes	16 parishes	16 parishes
50%	14 parishes	16 parishes	16 parishes	16 parishes

It appears that the percentage of dilapidated houses in an area is a **fairly good correlating factor** with the force of mortality, i. e., the greater the dilapidation the greater the force of mortality. Most of the parishes with lower forces of mortality have less than 25% of their houses dilapidated.

TABLE 8
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCES OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENTAGE LEVEL OF HOUSES IN EACH PARISH HAVING PRIVATE TOILETS, BATHS, AND HOT OR COLD RUNNING WATER, 1950.

Percentage of Houses in Parishes with Adequate Sanitation is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
20%	8 parishes	5 parishes	3 parishes	1 parish
25%	12 parishes	6 parishes	4 parishes	3 parishes
30%	14 parishes	10 parishes	6 parishes	5 parishes
40%	15 parishes	13 parishes	13 parishes	10 parishes
50%	16 parishes	15 parishes	14 parishes	12 parishes

The proportion of houses in an area having private toilets, baths, and hot or cold running water appears to **correlate very well** with the force of mortality, i. e., the lower the percentage of houses having such facilities in an area, the greater the forces of mortality. Most of the Parishes with **higher forces of mortality** have adequate basic sanitary facilities in less than 30% of their houses.

TABLE 9
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENTAGE LEVEL OF NEGRO POPULATION IN EACH PARISH, 1950.

Parishes Having a Population Proportion of Less Than	Parishes Arranged in 4 Quartiles (16 parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
20% Negroes	1 parish	2 parishes	4 parishes	4 parishes
25% Negroes	1 parish	5 parishes	6 parishes	7 parishes
30% Negroes	1 parish	6 parishes	8 parishes	10 parishes
35% Negroes	2 parishes	9 parishes	11 parishes	13 parishes
50% Negroes	7 parishes	14 parishes	15 parishes	16 parishes
65% Negroes	14 parishes	16 parishes	16 parishes	16 parishes

The proportion of the Negro population in a parish appears to **correlate very well** with the force of mortality. **The greater the proportion of Negro population in a parish, the more can be expected a high index of the force of mortality, and vice versa.** Since most of the parishes with lower forces of mortality are found to have **less than 35%** Negro population, this appears to be the **critical level** above which are found most of the parishes with higher forces of mortality.

TABLE 10
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENTAGE LEVEL OF RURAL POPULATION IN EACH PARISH, 1950.

Percentage of Rural Population in each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
30%	0 parish	1 parish	1 parish	3 parishes
40%	1 parish	1 parish	1 parish	3 parishes
50%	1 parish	3 parishes	2 parishes	3 parishes
60%	2 parishes	4 parishes	5 parishes	5 parishes
70%	4 parishes	7 parishes	6 parishes	8 parishes
80%	8 parishes	10 parishes	9 parishes	14 parishes

There appears to be very **little indication** that **rurality** is correlated with the force of mortality, except possibly where the proportion of rural population is very high.

TABLE 11
PARISHES IN LOUISIANA WITH DECREASING POPULATIONS, CLASSIFIED IN THE QUARTILES TO WHICH THEY BELONG ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENTAGE OF DECREASE IN POPULATION IN EACH PARISH, 1940 TO 1950.

Parishes with Decreasing Population, where the Decreases are Less Than	Parishes Arranged in 4 Quartiles (According to which each one With Decreasing Population Belong) from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
5%	2 parishes	2 parishes	0 parishes	3 parishes
10%	7 parishes	4 parishes	2 parishes	3 parishes
15%	9 parishes	6 parishes	6 parishes	3 parishes
20%	10 parishes	7 parishes	6 parishes	4 parishes
25%	13 parishes	7 parishes	6 parishes	4 parishes
Total Parishes with Decreasing Population	13 parishes	7 parishes	6 parishes	4 parishes

There appears to be some evident correlation between the **trend of decreasing population** and that of **increasing force of mortality.** This is probably the influence of the rate of economic deterioration. The correlation begins to become evident where the decreases are greater than 5%. The number of parishes with decreasing population is highest in the 1st quartile and lowest in the 4th quartile, as would be expected.

TABLE 12
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENTAGE OF PEOPLE IN EACH PARISH IN THE AGE-GROUP OF 65 YEARS OR MORE, 1950.

Parish Population with a 65 years or Older Age-Group Composing Less Than	Parishes Arranged in 4 Quartiles (16 parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
5% of the Population	0 parishes	1 parish	0 parish	4 parishes
6% of the Population	0 parishes	4 parishes	4 parishes	7 parishes
7% of the Population	4 parishes	7 parishes	7 parishes	12 parishes
8% of the Population	7 parishes	12 parishes	14 parishes	14 parishes
9% of the Population	14 parishes	15 parishes	15 parishes	16 parishes

The proportion of people in the age-group of 65 years or more appears to correlate with fair constancy to the force of mortality. **The greater the proportion of older people in an area, the more can be expected a high index of the force of mortality, and vice versa.** It appears that most of the parishes with lower forces of mortality have less than 7% of their populations in the older age-group, whereas most of the parishes with higher forces of mortality have more than 7% of their populations in the older age-group.

TABLE 13
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE SIZE OF THE POPULATION IN EACH PARISH, 1956.

Size of Population in each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
10,000	2 parishes	2 parishes	1 parish	0 parishes
20,000	10 parishes	6 parishes	6 parishes	7 parishes
30,000	13 parishes	8 parishes	10 parishes	9 parishes
40,000	15 parishes	12 parishes	10 parishes	11 parishes
50,000	15 parishes	14 parishes	12 parishes	13 parishes

There is **scarcely any indication** that **size of population** has any evident correlation to the force of mortality.

TABLE 14
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PER CAPITA ASSESSED VALUATION IN EACH PARISH, 1956

Per Capita Assessed Valuation in each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in Each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
$700	5 parishes	8 parishes	10 parishes	5 parishes
800	10 parishes	8 parishes	11 parishes	9 parishes
900	13 parishes	11 parishes	14 parishes	10 parishes
1,000	15 parishes	13 parishes	14 parishes	10 parishes

The Per Capita Assessed Valuation Does Not Appear as a Sensitive Correlating Factor to the Force of Mortality Under Conditions Prevailing in Louisiana.

TABLE 15
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES AND GROUPED ACCORDING TO THE PERCENT OF DELIVERIES IN HOSPITALS FOR EACH PARISH, 1950-1955 (6 YEARS)

Percent of Deliveries in Hospitals for Each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
40%	1 parish	0 parishes	0 parishes	0 parishes
50%	3 parishes	1 parish	0 parishes	0 parishes
60%	4 parishes	2 parishes	0 parishes	0 parishes
70%	9 parishes	2 parishes	1 parish	0 parishes
80%	13 parishes	4 parishes	3 parishes	1 parish
85%	14 parishes	7 parishes	6 parishes	3 parishes
90%	15 parishes	9 parishes	7 parishes	5 parishes
95%	16 parishes	13 parishes	11 parishes	11 parishes
98%	16 parishes	16 parishes	15 parishes	14 parishes

There appears to be a **strong correlation between the percent of deliveries in hospitals** and the force of mortality. The higher the percentage of deliveries in hospitals the lower the force of mortality. It appears that the **critical level** is between **85% and 90%** deliveries in hospitals. Below that level most of the parishes with the higher force of mortality are found.

TABLE 16
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENT OF ALL DELIVERIES ATTENDED BY PHYSICIANS IN HOSPITALS AND AT HOME.

Percent of Deliveries Attended by Physicians in Each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartilo	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
50%	2 parishes	0 parishes	0 parishes	0 parishes
60%	4 parishes	0 parishes	0 parishes	0 parishes
70%	6 parishes	1 parishes	0 parishes	0 parishes
80%	10 parishes	2 parishes	2 parishes	0 parishes
90%	13 parishes	7 parishes	6 parishes	2 parishes
95%	15 parishes	12 parishes	8 parishes	9 parishes
100%	16 parishes	16 parishes	16 parishes	16 parishes

The percentage of all deliveries attended by physicians (and, therefore, as a corollary, the percentage of deliveries not attended by physicians) appears to be a **fairly evident correlating** factor to the force of mortality. It appears that, when parishes have more than 90% of deliveries attended by physicians, they strongly tend to fall among the parishes with lower forces of mortality.

TABLE 17
SOCIO-MEDICAL FACTORS
RELATED TO THE CUMULATIVE FORCE OF MORTALITY IN EACH PARISH IN LOUISIANA

Parishes Listed According to their Cumulative Force of Mortality Indices, From Highest to Lowest Index	% Deliveries in all Hospitals 1950-1955 (6 years average)	% Deliveries in State Hospitals, 1955	% Deliveries Attended by Physicians, 1950-1955 (6 year average)	% Deliveries **not** Attended by Physicians, 1950-1955 (6 year average)	% Deliveries Attended by Physicians **not** including Deliveries in State Hospitals 1950-1955	Hospital Beds and Bassinets—1956*	
						Number	Population per Bed
See Tables 2 and 3	See Table 15		See Table 16		See Table 18		See Table 19
01 Madison	42	12	43	57	31	32	526
02 Red River	77	41	83	17	42	40	244
03 Richland	78	39	90	10	51	60	422
04 West Feliciana	41	22	45	55	20		
05 East Carroll	29	7	50	50	43		
06 Tensas	53	4	55	45	50	38	303
07 Iberville	67	**	72	28	72	44	594
08 Concordia	71	**	71	29	70	34	420
09 DeSoto	75	41	68	32	27	95	208
10 Morehouse	66	24	75	25	51	80	435
11 Pointe Coupee	63	18	71	29	53	46	445
12 Bienville	81	30	84	16	54	25	644
13 St. James	66	32	82	18	50	50	291
14 Natchitoches	61	21	68	32	46	36	1,010
15 Ouachita	94	40	97	3	57	640	132
16 Beauregard	89	3	93	7	90	68	288
17 Webster	90	26	94	6	68	85	435
18 Vernon	92	7	93	7	84	79	239
19 Iberia	89	31	96	4	65	99	423
20 LaSalle	97	13	97	3	84	70	197
21 Washington	92	50	94	6	44	214	191
22 St. Mary	74	12	85	15	73	111	348
23 East Feliciana	57	38	61	39	23	25	793
24 Caddo	97	42	98	2	56	1,678	115
25 St. Martin	89	47	91	9	44	28	940
26 St. Helena	93	68	94	6	23		
27 Caldwell	96	41	98	2	57	23	400
28 Sabine	77	13	79	21	66	110	174
29 Union	80	43	85	15	42	33	546
30 Evangeline	82	25	85	15	60	160	202
31 Claiborne	44	25	83	17	58	67	329
32 St. Landry	80	43	84	16	41	69	1,201
33 West Carroll	70	24	82	18	58	21	762
34 Orleans	99	43	99+	−1	57	5,330	116
35 Grant	96	40	98	2	58		
36 Franklin	67	20	70	30	50	70	393
37 Tangipahoa	95	65	97	3	32	192	302
38 Jackson	93	60	95	5	35	50	279
39 Cameron	92	**	98	2	98		
40 Livingston	91	43	96	4	53		
41 West Baton Rouge	70	20	77	23	57		
42 Lincoln	83	22	84	16	62	64	413
43 Ascension	81	26	87	13	61	53	436
44 Terrebonne	92	24	94	6	70	124	387
45 Rapides	96	34	97	3	63	782	130
46 Acadia	86	34	90	10	56	133	357
47 Assumption	82	22	88	12	66	55	290
48 Lafayette	95	44	97	3	53	587	113
49 St. Bernard	99	23	99+	−1	77		
50 St. Tammany	90	47	94	6	47	38	765
51 Avoyelles	76	35	82	18	46	90	414
52 Allen	94	10	96	4	86	146	135
53 St. John	88	58	95	5	37		
54 Winn	91	19	92	8	71	63	248
55 Lafourche	85	14	91	9	77	102	436
56 Calcasieu	92	3	93	7	90	446	247
57 Vermilion	96	22	97	3	75	122	299
58 Plaquemines	90	27	94	6	67	19	813
59 Jefferson Davis	83	16	90	10	74	44	628
60 St. Charles	96	32	99	1	67		
61 Catahoula	80	11	81	19	70	29	348
62 Bossier	96	26	96	4	70		
63 East Baton Rouge	90	18	91	9	73	563	359
64 Jefferson	98	24	99+	−1	76	326	421
Total			92	8	60	13,588	212

* In general hospitals, and children and maternity hospitals open to the general public.
** Figure is very small.

TABLE 17—(Continued)
SOCIO-MEDICAL FACTORS RELATED TO THE CUMULATIVE FORCE OF MORTALITY IN EACH PARISH IN LOUISIANA

Parishes listed According to their Cumulative Force of Mortality Indices, From Highest to Lowest Index		Physicians 1956		Median School years completed (25 years and over)		Live Births in State Hospitals 1953-1955**	
		Number	Population per Physician	Male	Female	Number	% Births in each Parish
See Tables 2 and 3			See Table 20	See Table 23			See Table 18
01	Madison	7	2,404	4.9	5.8	67	12%
02	Red River	3	3,253	5.1	6.1	123	41%
03	Richland	15	1,688	6.0	6.8	342	39%
04	West Feliciana	2	4,600	5.7	5.2	63	25%
05	East Carroll	6	2,433	5.2	5.6	38	7%
06	Tensas	5	2,233	5.0	5.8	20	5%
07	Iberville	15	1,743	5.1	5.5	5	-1%
08	Concordia	8	1,787	5.7	6.5	7	1%
09	DeSoto	11	1,797	5.6	6.9	277	41%
10	Morehouse	16	2,177	6.1	6.9	273	24%
11	Pointe Coupee	4	5,123	4.3	4.6	115	18%
12	Bienville	6	2,680	6.7	7.6	127	30%
13	St. James	9	1,616	4.8	5.9	162	32%
14	Natchitoches	15	2,424	5.4	6.4	214	22%
15	Ouachita	94	898	8.3	8.7	992	40%
16	Beauregard	8	2,449	7.2	8.1	18	3%
17	Webster	17	2,175	7.9	8.3	271	26%
18	Vernon	7	5,203	7.5	7.9	61	9%
19	Iberia	32	1,308	5.5	6.2	393	31%
20	LaSalle	8	1,727	7.3	8.5	46	13%
21	Washington	28	1,458	7.4	8.2	604	50%
22	St. Mary	18	2,144	5.3	5.9	141	12%
23	East Feliciana	18	1,100	5.4	7.0	165	38%
24	Caddo	303	637	9.0	9.5	2,542	42%
25	St. Martin	11	2,394	6.3	3.8	407	47%
26	St. Helena	1	8,683	5.7	7.9	133	71%
27	Caldwell	4	2,300	6.9	7.8	96	41%
28	Sabine	10	1,919	6.3	7.3	63	13%
29	Union	10	1,802	7.0	7.8	184	43%
30	Evangeline	8	4,042	4.2	4.7	211	25%
31	Claiborne	15	1,471	7.2	8.0	128	25%
32	St. Landry	40	2,071	4.2	4.7	1,068	43%
33	West Carroll	4	3,999	6.5	7.6	107	24%
34	Orleans	1,580	391	8.6	8.6	7,053	43%
35	Grant	3	4,406	7.1	7.5	135	40%
36	Franklin	14	1,964	5.7	6.7	178	20%
37	Tangipahoa	31	1,872	6.4	7.4	1,105	65%
38	Jackson	11	1,268	7.4	8.4	226	60%
39	Cameron	5	1,129	5.8	5.9		
40	Livingston	5	4,294	6.9	7.7	237	43%
41	West Baton Rouge	3	4,013	5.3	6.0	68	20%
42	Lincoln	20	1,320	8.5	9.6	135	22%
43	Ascension	8	2,890	5.9	6.4	179	26%
44	Terrebonne	23	2,086	5.1	5.8	384	24%
45	Rapides	124	818	7.2	7.9	933	34%
46	Acadia	32	1,486	5.3	5.5	489	34%
47	Assumption	8	2,061	3.9	4.6	109	22%
48	Lafayette	85	781	6.4	6.6	862	44%
49	St. Bernard	4	3,368	7.1	7.3	131	23%
50	St. Tammany	33	881	7.1	7.8	383	47%
51	Avoyelles	18	2,070	5.8	6.4	369	36%
52	Allen	10	1,965	6.8	7.0	58	10%
53	St. John	6	2,487	5.1	5.8	301	58%
54	Winn	6	2,602	6.9	7.9	74	21%
55	Lafourche	34	1,307	4.4	5.1	197	14%
56	Calcasieu	98	1,125	8.0	8.3	122	3%
57	Vermilion	20	1,821	4.3	4.5	209	22%
58	Plaquemines	7	2,205	6.4	6.6	146	27%
59	Jefferson Davis	18	1,534	5.7	6.1	135	16%
60	St. Charles	10	1,412	6.6	6.8	167	32%
61	Catahoula	3	3,365	6.2	6.5	39	11%
62	Bossier	13	3,423	8.8	8.9	433	26%
63	East Baton Rouge	233	866	9.7	10.0	964	18%
64	Jefferson	62	2,214	8.3	8.5	989	24%
	Total	3,285	878			26,273	31%

** Live Births in all State General Hospitals is for the calendar year of 1955, except for Charity Hospital, New Orleans. For the latter, the data is for fiscal year of 1953-1954.

TABLE 18
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE PERCENT OF DELIVERIES ATTENDED BY PHYSICIANS, NOT INCLUDING DELIVERIES IN STATE HOSPITALS

% of Deliveries Attended by Physicians (not including state hospitals) for each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in Each Quartile), from Highest to Lowest Index of the Forces of Mortality			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
30%	2 parishes	2 parishes	0 parishes	0 parishes
40%	3 parishes	2 parishes	2 parishes	1 parish
50%	6 parishes	6 parishes	2 parishes	3 parishes
60%	13 parishes	9 parishes	10 parishes	3 parishes
70%	13 parishes	13 parishes	14 parishes	5 parishes
80%	15 parishes	14 parishes	15 parishes	14 parishes
90%	15 parishes	16 parishes	15 parishes	15 parishes

There appears to be only a **slight indication of correlation between the percentage of all deliveries (in hospitals and at home, except those in State Hospitals) attended by physicians and the force of mortality.** When State Hospitals are included, as shown in Tables 15 and 16, a strong correlation between medical care and the force of mortality is manifested. Therefore, it may be assumed that the State Hospital system adds enough weight to the medical efforts in the state to influence effectively the lowering of the force of mortality.

TABLE 19
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE POPULATION PER HOSPITAL BED IN EACH PARISH, 1956.

Population per Hospital Bed in Each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
200	1 parish	4 parishes	3 parishes	1 parish
300	5 parishes	6 parishes	5 parishes	4 parishes
400	6 parishes	8 parishes	9 parishes	6 parishes
500	10 parishes	11 parishes	11 parishes	9 parishes
600	12 parishes	12 parishes	11 parishes	9 parishes
Not listed as having hospitals	2 parishes	1 parish	4 parishes	4 parishes

The number of the population per hospital bed does **not** appear as an **evident correlating factor** to the force of mortality under conditions prevailing in Louisiana. This does not mean that the hospital beds-population ratio is not an important health index in comparing different countries or large areas within a country. It does not appear to be a sensitive factor in comparing such small interrelated areas as parishes under present conditions in Louisiana.

TABLE 20
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE POPULATION PER PHYSICIAN IN EACH PARISH, 1956

Population per Physician in Each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in Each Quartile), from Highest to Lowest Index of the Forces of Mortality.			
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)	2nd Quartile	3rd Quartile	4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)
1,500	1 parish	5 parishes	7 parishes	5 parishes
2,000	6 parishes	8 parishes	9 parishes	8 parishes
2,250	8 parishes	11 parishes	11 parishes	11 parishes
2,500	12 parishes	13 parishes	11 parishes	12 parishes
3,000	13 parishes	13 parishes	12 parishes	13 parishes

The number of the population per physician does **not** appear as **a sensitive correlating factor** to the force of mortality under conditions prevailing in Louisiana. There is, however, an indication that, under favorable economic conditions, and under the conditions now existing in Louisiana, an area tends to have a lower force of mortality where the ratio of physician to population is less than 1:2,250, since the majority of parishes with the lower forces of mortality have less than 2,250 persons per physician.

TABLE 21

POSITION OF EACH PARISH ACCORDING TO VARIOUS SOCIO-ECONOMIC AND SOCIO-MEDICAL FACTORS THAT EVIDENTLY APPEAR TO CORRELATE IN LOUISIANA WITH THE CUMULATIVE FORCE OF MORTALITY (SEE TABLES 8 AND 9), AND THE CUMULATIVE HEALTY FORCE (INDEX NUMBER) OF EACH PARISH.

	Parishes Arranged in the order of their **Cumulative Force of Mortality** from **Highest to Lowest**	Position Number: the **Lower the Number**, the **Lower the Position** of the Parish for Each Factor.					
		Median Income of Families and Unrelated Individuals 1950	Indices* of Poor Housing 1950	Proportion of Negro Population	Proportion of Deliveries in Hospitals, 1950-1955	Proportion of Deliveries **not** Attended Physicians, 1950-1955	Cumulative Health Forces: Index Number**
01	Madison	4	3	3	3	1	2.8
92	Red River	6	7	11	19	19	12.4
03	Richland	22	9	20	21	29	20.2
04	West Feliciana	11	4	1	2	2	4.0
05	East Carroll	1	13	4	1	3	4.4
06	Tensas	2	2	2	5	4	3.0
07	Iberville	31	18	15	11	11	17.2
08	Concordia	7	41	5	15	9	15.4
09	DeSoto	15	25	6	17	6	13.8
10	Morehouse	37	29	16	9	12	20.6
11	Pointe Coupee	14	11	7	8	10	10.0
12	Bienville	27	8	14	25	21	19.0
13	St. James	13	16	12	10	16	13.4
14	Natchitoches	3	12	17	7	7	9.2
15	Ouachita	57	58	34	50	51	50.0
16	Beauregard	39	51	56	34	37	43.4
17	Webster	54	49	27	37	39	41.2
18	Vernon	10	28	62	43	36	35.8
19	Iberia	50	50	36	35	47	43.6
20	LaSalle	40	52	63	60	52	53.4
21	Washington	44	37	38	44	40	40.6
22	St. Mary	49	31	23	16	24	28.6
23	East Feliciana	5	10	49	6	5	15.0
24	Caddo	59	57	24	61	57	51.6
25	St. Martin	29	32	25	36	32	30.8
26	St. Helena	8	1	9	48	41	21.4
27	Caldwell	30	14	42	54	58	39.6
28	Sabine	20	15	53	20	14	24.4
29	Union	36	6	31	22	26	24.2
30	Evangeline	25	33	50	27	25	32.0
31	Claiborne	35	22	10	4	20	18.2
32	St. Landry	24	24	18	23	22	22.2
33	West Carroll	9	19	55	13	17	22.6
34	Orleans	61	63	37	63	62	57.2
35	Grant	17	23	47	55	59	40.2
36	Franklin	23	5	26	12	8	14.8
37	Tangipahoa	18	21	39	52	53	36.6
38	Jackson	51	48	40	49	45	46.6
39	Cameron	58	43	64	45	60	54.0
40	Livingston	42	35	58	41	48	44.8
41	West Baton Rouge	33	26	8	14	13	18.8
42	Lincoln	19	38	21	29	23	26.0
43	Ascension	32	30	28	26	27	28.6
44	Terrebonne	52	47	46	46	42	46.6
45	Rapides	46	56	32	56	55	49.0
46	Acadia	38	44	54	32	30	39.6
47	Assumption	16	20	19	28	28	22.2
48	Lafayette	45	59	44	53	54	51.0
49	St. Bernard	56	55	59	64	63	59.4
50	St. Tammany	34	60	41	38	43	43.2
51	Avoyelles	21	17	45	18	18	23.8
52	Allen	41	40	48	51	49	45.8
53	St. John	47	45	13	33	46	36.8
54	Winn	28	27	43	42	35	35.0
55	Lafourche	55	46	60	31	33	45.0
56	Calcasieu	63	61	51	47	38	52.0
57	Vermilion	26	39	61	57	56	47.8
58	Plaquemines	60	36	22	39	44	40.2
59	Jefferson Davis	43	54	52	30	31	42.0
60	St. Charles	53	53	35	58	61	52.0
61	Catahoula	12	34	29	24	15	22.8
62	Bossier	48	42	30	59	50	45.8
63	East Baton Rouge	62	64	33	40	34	46.6
64	Jefferson	64	62	57	62	64	61.8

* These index numbers represent a combination of the proportion of dilapidated houses and houses with private toilets, baths, and hot or cold running water in each parish. The smaller the index number, the worse the housing condition.

** Index Number is calculated by averaging the position numbers of each parish, then giving each average a position number from 1 to 64, i. e., from lowest to highest Cumulative Health Forces.

TABLE 22
COMPARISION OF THE POSITION OF EACH PARISH ACCORDING TO ITS CUMULATIVE FORCE OF HEALTH AND ITS CUMULATIVE FORCE OF MORTALITY, AND KEY INDICATING WHETHER HEALTH IS BETTER OR WORSE THAN EXPECTED

Parishes Arranged in the Order of Their Cumulative **Force** of **Health** Indices from **Lowest to Highest**	The **Number** Designating the **Position** of Each Parish According to its Cumulative **Force of Health**; the lower the Number, the Weaker the Force of Health	The **Number** Designating the **Position** of Each Parish According to its Cumulative **Force of Mortality**; the Lower the Number, the Stronger the Force of Mortality	Health of Parish appears **WORSE** than Expected*	Health of Parish appears **BETTER** than Expected*
Madison	1	1		
Tensas	2	6		
West Feliciana	3	4		
East Carroll	4	5		
Natchitoches	5	14		
Pointe Coupee	6	11		
Red River	7	2		
St. James	8	13		
DeSoto	9	9		
Franklin	10	36		x
East Feliciana	11	23		o
Concordia	12	8		
Iberville	13	7		
Claiborne	14	31		x
West Baton Rouge	15	41		x
Bienville	16	12		
Richland	17	3	o	
Morehouse	18	10		
St. Helena	19	26		
St. Landry	20	32		o
Assumption	21	47		x
West Carroll	22	33		o
Catahoula	23	61		x
Avoyelles	24	51		x
Union	25	29		
Sabine	26	28		
Lincoln	27	42		o
St. Mary	28	22		
Ascension	29	43		o
St. Martin	30	25		
Evangeline	31	30		
Winn	32	54		x
Vernon	33	18	o	
Tangipahoa	34	37		
Acadia	35	46		o
St. John	36	53		x
Caldwell	37	27	o	
Grant	38	35		
Plaquemines	39	58		x
Washington	40	21	x	
Webster	41	17	x	
Jefferson Davis	42	59		x
St. Tammany	43	50		
Beauregard	44	16	x	
Iberia	45	19	x	
Livingston	46	40		
Lafourche	47	55		
Allen	48	52		
Bossier	49	62		o
Jackson	50	38	o	
Terrebonne	51	44		
East Baton Rouge	52	63		o
Vermilion	53	57		
Rapides	54	45		
Ouachita	55	15	x	
Lafayette	56	48		
Caddo	57	24	x	
Calcasieu	58	56		
St. Charles	59	60		
LaSalle	60	20	x	
Cameron	61	39	x	
Orleans	62	34	x	
St. Bernard	63	49	o	
Jefferson	64	64		

*x Stands for a **positive indication** that the Health and Mortality Forces did not correlate, i. e., the difference of position between the two was 16 or more intervals (a quartile or more).

o Stands for a **suspected indication** that the Health and Mortality Forces did not correlate, i. e., the difference of position between the two was between 10 and 16 intervals.

TABLE 23
PARISHES IN LOUISIANA, CLASSIFIED INTO QUARTILES ACCORDING TO THEIR FORCE OF MORTALITY INDICES, AND GROUPED ACCORDING TO THE MEDIAN SCHOOL YEARS COMPLETED IN THE MALE AND FEMALE POPULATION (25 YEARS AND OVER) IN EACH PARISH

Median School Years Completed in Each Parish is Less Than	Parishes Arranged in 4 Quartiles (16 Parishes in each Quartile), from Highest to Lowest Index of the Forces of Mortality.							
	1st Quartile (Parishes with Highest Indices of the Forces of Mortality)		2nd Quartile		3rd Quartile		4th Quartile (Parishes with Lowest Indices of the Forces of Mortality)	
	Male	Female	Male	Female	Male	Female	Male	Female
4.0 years	0 Par.	0 Par.	0 Par.	1 Par.	1 Par.	0 Par.	0 Par.	0 Par.
5.0 years	3 Par.	1 Par.	2 Par.	3 Par.	1 Par.	1 Par.	2 Par.	1 Par.
6.0 years	11 Par.	7 Par.	6 Par.	4 Par.	7 Par.	4 Par.	5 Par.	3 Par.
7.0 years	14 Par.	13 Par.	9 Par.	5 Par.	11 Par.	8 Par.	10 Par.	8 Par.
8.0 years	15 Par.	14 Par.	15 Par.	11 Par.	14 Par.	13 Par	12 Par.	12 Par.
9.0 years	16 Par.	16 Par.	15 Par.	15 Par.	16 Par.	15 Par.	15 Par.	15 Par.
10.0 years	16 Par.	16 Par.	16 Par.	16 Par.	16 Par.	16 Par.	16 Par.	15 Par.

There **scarcely appears to be any correlation** between the **median school years completed** (in the population of 25 years of age and over) and the force of mortality under the conditions prevailing in Louisiana.

public health programs, the size and nature of local budgets, local financial participation, etc., on the other hand, are yet to be studied. The pinpointing of problem parishes will have to be followed up by detailed intensive studies and evaluations in such individual parishes.

The study has, however, revealed pertinent interrelations between particular socio-economic forces and the forces of health and mortality which state and local governments could use in reappraising and redirecting certain of their efforts, in a more purposeful manner, for bettering those conditions which appear to support the forces of health.

To what extent can the force of official public health programs, well conceived and well managed, augment the health forces in a community where other socio-economic factors remain more or less constant? This question has been asked many times, and many answers have been given. The difficulty in answering this question reposes in the fact that the force of public health is so intimately a part of other socio-economic forces. Nevertheless, it is a challenge to the system of public health in Louisiana to demonstrate to what extent a well directed pinpointing program can reduce the mortality forces in those parishes which are preventing Louisiana from rising above the average level of health in the United States.

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OPTIC AND RETROBULBAR NEURITIS

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With the very extensive work and the voluminous literature written on optic and retrobulbar neuritis, this condition remains an enigma, and a very controversial topic, both from a standpoint of classification as to type and position, and from an etiological standpoint.

Retrobulbar neuritis has been very well explained by Weill and Duke-Elder and quoted by many as "That disease in which neither the patient nor the physician sees anything". For the most part this is true.

CLASSIFICATION

There are several questions that have repeatedly arisen in my mind concerning this condition which have not, in all my review of the literature, been satisfactorily explained. From a purely technical point of view, one of the major causes now considered is not a neuritis at all in the true sense of the word, but a degener-

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ative process possibly initiated by tissue infections. I think of allergic responses in the nerve causing islands of demyelinization. The demyelinating diseases, with multiple sclerosis in particular, I place in this category.

Then too, there are almost as many differences of opinion as to types as there are writers of the disease. The most common classification is that of position—being namely papillitis, optic neuritis, retrobulbar neuritis, and so on. The fault with this classification, I find, is that the retina, except for neuroretinitis, and cerebral cortex is excluded. In addition to this, I find that no one attempts to determine where a papillitis stops and an optic neuritis begins, or where this ends, and a retrobulbar neuritis begins and ends from an anatomical standpoint.

Many will take issue with me on my contention that all afflictions from retinitis to inflammation of the visual cortex should be called simply *optic neuritis* for the reason that this term is too generalized. The fact remains, however, that these, with the intermittent pathways, are part of the optic nerve system.

To soften the disagreement somewhat, I will exclude the retina in itself in the classification, but not in its effect on the nerve itself. This I intend to return to later as a cause of optic neuritis associated with chorioretinitis and uveitis in general.

If we accept the more or less accepted classification, we would begin where the retinal elements converge on the nerve head and terminate at about the level of the lateral geniculate body, leaving the entire pathway within the retina and brain to other classification.

There are certain findings which are described by some writers, that to me are not adequately explained. For example, "Why is the enlarged blind spot, described in conjunction with a central scotoma, found in optic neuritis?" It is hard for me to explain, but I have found it to happen in a few of my cases.

DIAGNOSIS

From a clinical point of view, optic neuritis is sometimes not too difficult to diagnose. Papillitis and neuro-retinitis probably offer the most concern, due to the fact that it must be differentiated from papilledema due to increased intracranial pressure. This is a problem facing both the general practitioner and the ophthalmologist. Actually, in the severe papillitis the nerve head may be indistinguishable from a papilledema because there is interference with vascular control which is manifested by hemorrhages in the retina, and enlargement and tortuosity of the retinal veins. The resulting edema of the nerve head causes its indistinct margins. Usually, however, the nerve head has a pinker color in papillitis, and while the blind spot in this instance is usually enlarged, a central or caecocentral scotoma will propably also be present in the majority of these cases, but not all of them.

In optic neuritis, vision may be lost completely and remain unchanged for a while after which vision gradually recovers, but not always to normal. A residual optic atrophy may often occur.

Following a meningitis, optic neuritis may occur possibly as an extension of the disease process along the meninges of the nerve. Papillitis is also frequently found as a complication of uveitis. Paracentral scotomata indicating axial involvement without loss of central vision often occur in both conditions.

The retrobulbar form, even if the process stops a few milimeters behind the globe, will not be detected by the use of the ophthalmoscope. Walsh thinks that afflictions distal to the entrance of the central retinal vessels will cause ophthalmoscopic findings, while those proximal to its entrance will not.

Clinical findings will be a rather sudden onset of visual loss, either preceded by, or concomitant with pain on movement or pressure of the globe. Headaches, and at times malaise and nausea, frequently appear. A paradoxical pupillary reaction is

sometimes found, but this finding is not constant enough to be of diagnostic value. The process tends to be unilateral. The visual loss may vary from slight blurring to complete blindness. There is a definite predilection for the papillomacular bundle to be affected, which causes the central scotoma. Frequently in axial neuritis isolated nerve bundles may be involved, causing more than one scotoma which may change shape.

A little known independent axial vessel, termed the central optic nerve artery, arises from the ophthalmic artery early in its course and enters the nerve independent of the central retinal artery. This anastomoses with the arterial circle of Zinn and is designed to feed macular fibers. It also acts as a vasa vasorum for the central artery itself. There are variations of this vessel, but it is constantly found.

The maculopapular bundle, therefore, has a very limited blood supply in contrast to the rest of the nerve, supplied from the outer pial network which has a very rich blood supply. It is thought that this is the reason why the maculopapular bundle is so susceptible to any affliction of the nerve.

Walsh differentiates the types of optic neuritis as to the involvement of the papillomacular bundle, and states that interference with this occurs only in retrobulbar neuritis.

Types of optic neuritis are as follows:

1. Perineuritis
   a. Exudative—following interstitial leptomeningitis
2. Papillitis
3. Neuro-retinitis
4. Retrobulbar neuritis
   a. Axial neuritis
   b. Transverse neuritis
   c. Interstitial (periaxial) neuritis
5. Purulent — abscess of nerve. May progress to panophthalmitis. Rare.

ETIOLOGICAL FACTORS CAUSING OPTIC OR RETROBULBAR NEURITIS

1. *Intraocular inflammatory disturbances*—such as uveitis, especially posterior uveitis.

2. *Generalized inflammatory conditions within the skull and orbit*—such as sympathetic ophthalmia and meningitis secondary to syphilis, tuberculosis, influenza, mumps, malaria, measles, and other exanthematous diseases which at times cause a papillitis. This group usually causes a peripheral neuritis.

3. *Local infections* — such as of paranasal sinuses, teeth, tonsils and gastrointestinal or genitourinary tracts.

4. *Blood dyscrasias* and *vascular disturbances* — including pernicious anemia and myelogenous leukemia.

5. *Metabolic disturbances*—including diabetes, nutrition, lactation, pregnancy, and even menstruation.

6. *Systemic poisons*—such as digitalis, methyl alcohol, quinine, arsenic, lead, tobacco, and ethyl alcohol. Carroll lists at least 50 causes. Some toxic agents produce central visual defects, some peripheral, some mixed, and a few cause cortical blindness.

7. *Hereditary optic neuritis (Leber's Disease)*. May occur late. Rare.

8. *Allergies*. This category is important because there is a distinct possibility of localized neural tissue sensitization to bacterial and other toxins which cause an anaphylactic reaction, originating from other parts of the body. In this respect, nearly all of the above categories may have some allergic component. Virus infections play a prominent part in a portion of the above categories. In this category would be found general inflammatory conditions, especially the exanthemata.

9. *Certain central nervous system diseases*—such as multiple sclerosis, Devic's disease (neuromyelities optica), acute encephalopathy. The cause of these diseases is unknown though there are many theories. Many believe all are different manifestations of the same disease, though there is a great amount of evidence to the contrary.

10. *Nutritional*

11. *Etiology unknown*. Possibly this is the largest category, and certainly large enough to be embarrassing. It comprises about one-third of all cases with averages

varying from 56 per cent at Johns Hopkins to 40 per cent at the Mayo Clinic, and 30 per cent at the Eye Institute at New York.

After a period of time and with onset of other symptoms a diagnosis could be made. About half of young middle aged adults developed multiple sclerosis later.

12. *Vascular*

The most common is that of intra-ocular inflammation producing optic neuritis, which may be either a frank papillitis or axial involvement of the retrobulbar portion of the nerve. This is probably due to an extension of a periphlebitis of the retinal veins to the nerve in the retrobulbar type, and by direct toxins when a papillitis alone is found. It is certainly true that following severe cases of uveitis, if careful search is made on the tangent screen following such an attack, often small and sometimes ill defined paracentral scotomata will be found. These are overlooked in hastily performed field studies. I believe some degree of papillitis may be found in most severe cases of uveitis.

CASE REPORTS

A case in evidence is that of P. W., who exhibited a fulminating generalized granulomatous uveitis of undetermined origin in one eye, followed by occurrence later in the fellow eye. A papillitis was diagnosed due to enlarged blind spot alone, without a caecocentral defect. This subsided on foreign protein therapy and has not been found since.

A second illustrative case is that of Mr. H. O. F. This patient presented himself for examination with the complaint of blurred vision in the right eye. A generalized uveitis was found with some haziness of the vitreous, but no areas of chorioretinitis could be demonstrated. The disc margins were blurred and indistinct and the disc was

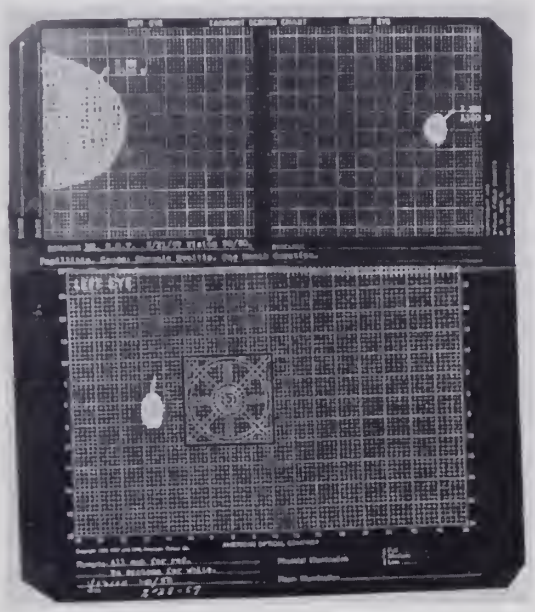


Figure 2.—(Case No. 2) H. O. F. Tangent fields before and after one week of cortisone therapy. Papillitis secondary to uveitis. Eventual complete recovery.

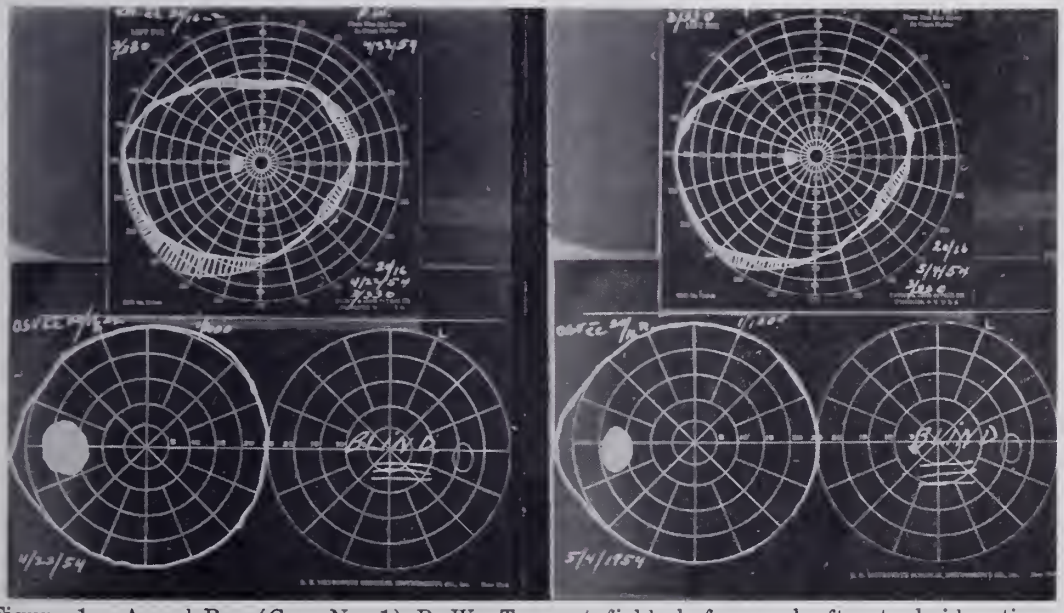


Figure 1.—A and B.—(Case No. 1) P. W. Tangent fields before and after typhoid antigen therapy. Enlarged blind spot due to papillitis secondary to uveitis.

slightly swollen. A small hemorrhage was found on the disc, and the blind spot was greatly enlarged. Vision was light perception. The opposite eye was normal, and general physical examination was completely negative.

The patient was treated with systemic cortisone, only, and one week later the disc appeared to be much more normal. The blind spot was normal, and the vision was 20/40. Red objects were indistinctly seen, but this patient is red blind. This is one of the pitfalls of color fields.

With so many different etiological factors, it is not so surprising that the literature is full of contradictory conclusions. Early it was thought that foci of infections were the predominant cause and the paranasal sinuses were given credit for the majority of the cases. Many a useless operation has been performed to effect a cure. It is true that the optic nerve is separated from the posterior ethmoid cells by a very thin plate of bone in some instances, and actually runs through the sphenoids with only its dural sheath as covering in a few. But, considering the large number of sinus infections with no optic nerve involvement, the pendulum naturally swept away from sinus disease as a primary cause.

It is my opinion, however, that foci of infection whether, sinuses, teeth, tonsils, or others do play some part in cases of optic neuritis in that they do aggravate or initiate cases which are actually of other origin and the foci should be eliminated when found. Woods and Walsh separately doubt that there is little to substantiate the neurotropic character of toxins from septic foci. And Walsh further states that allergic responses as regards optic neuritis do not occur but he still advocates removal of foci.

The second common cause of optic neuritis is that of undetermined origin, remembering that the demyelinating diseases must be placed along with this category in their earliest stages.

A case in point is that of Mrs. C. E. S., age 22. This patient complained of diminished vision in the left eye, beginning suddenly on July 1, 1956. She stated that she could not see anything when looking at it directly, but had some peripheral field vision. She then developed pain over the left eye, and looking from side to side was painful. There was no fever and no respiratory infection. Preceding the onset of this visual blurring, the patient stated that she was not feeling well for two or three days. However, she ascribed this to her menstrual period which was present at that time. She went to see her family physician who referred her for diagnosis and treatment. About two weeks later, two infected teeth were

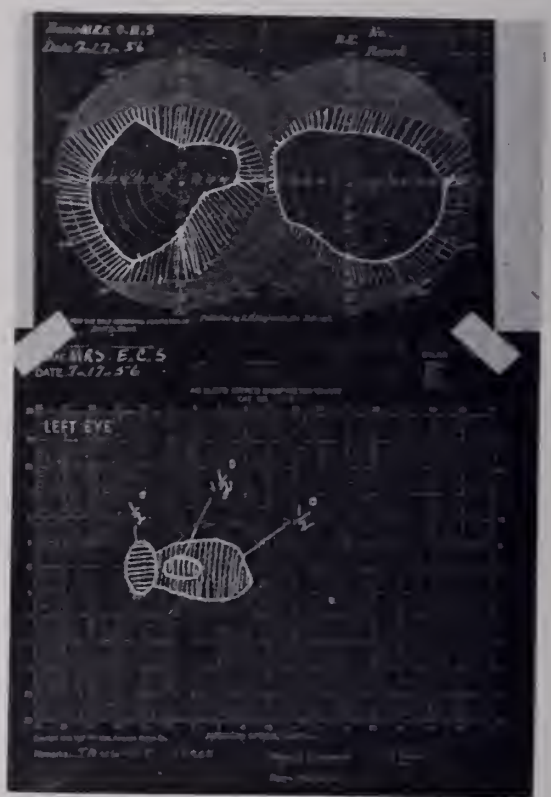


Figure 3.—A, B, C, D, E.—(Case No. 3) Mrs. C. E. S. Course of retrobulbar neuritis. Origin unknown. Note increased blind spot after tooth extraction and later multiple scotomata. Condition stationary.

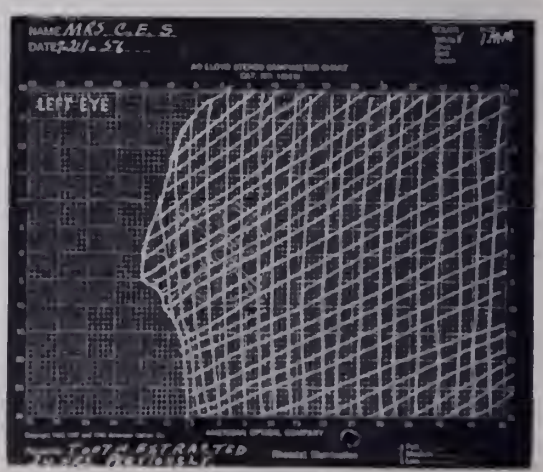


Figure 3-B

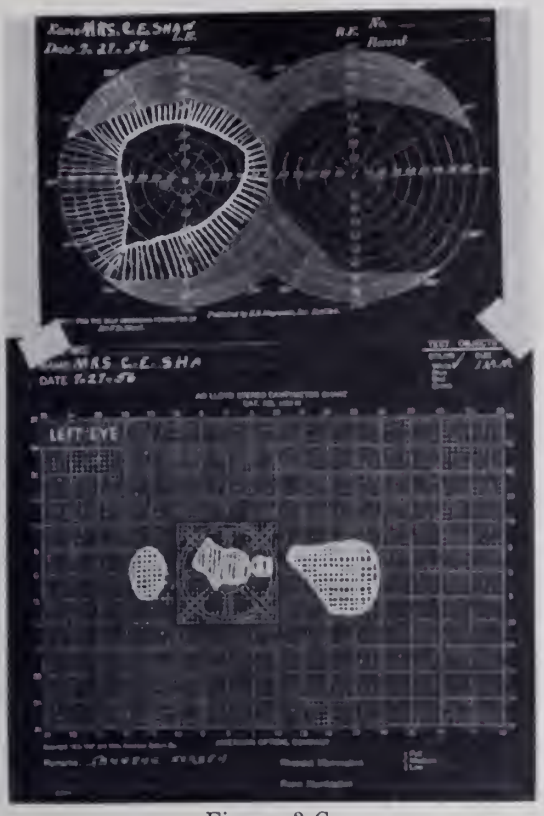


Figure 3-C

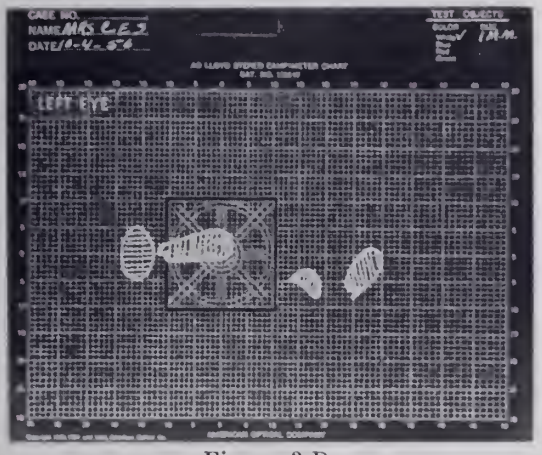


Figure 3-D

extracted and this seemed to cause a flare-up in her eye condition, which caused almost total blindness in the left eye. The pain around the eye subsided in about two weeks. The patient was treated with cortisone, Vitamin B_{12}, and Roniacol. She appeared to be improving, but a beginning optic atrophy was noted prior to neurological examination which she finally consented to, and resented very much. It should be noted that in August 1956, the patient had a feeling of numbness and tingling, involving the left arm and left face which lasted about one hour, but has not

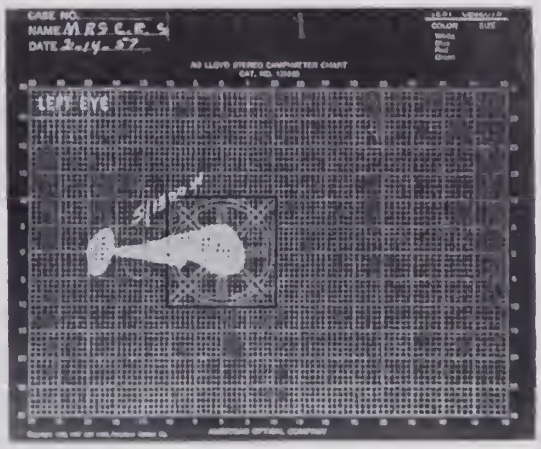


Figure 3-E

returned since. The patient also stated that over the past year and a half she has observed a quivering and jerky feeling, which affected different muscle groups all over her body. This occurred several times a day, but it did not last very long. She admitted to being quite nervous over the past five years. She is not prone to have headaches, except during her menstrual periods. Two years ago, the patient had a left oophorectomy performed supposedly for a tumor. Seven years ago, the patient had an appendectomy. The patient is married and has one child, age 5. General physical examination was normal in all respects.

The neurosurgeon's examination revealed normal pupillary reflexes, beginning optic atrophy, and a caecocentral scotoma. The survey of the function of the cranial nerves was negative. Cerebellar and coordination tests were well performed. She would not consent to spinal tap.

The Neurosurgeon's Comment: "This patient gives a good history for retrobulbar neuritis. The question here is mainly whether this is only the forerunner of a demyelinating disease, such as Devic's disease or possible multiple sclerosis. The short transient episodes of left arm and left face numbness, and possibly the quivering of different muscle groups, may indicate a diffuse process such as in multiple sclerosis. However, on objective examination today, there was absolutely no evidence to justify this diagnosis at the present time. I believe that it has to be kept in mind and the patient should be re-examined at six month intervals. For the present time, however, only a diagnosis of retrobulbar neuritis, involving the left eye, can be made. It is possible that once optic atrophy develops, that no further improvement of vision will occur."

The Summary of My Visual Field Findings: The scotoma has been caecocentral since the onset. There was an immediate flare-up of short duration with increase of the area of scotoma after the tooth was removed. The scotoma has fragmented at times and isolated nerve bundle defects

have been found, but now I believe a permanent defect will be found.

Optic neuritis from nutritional causes must be mentioned. They are usually bilateral and were frequently found among prisoners of war of the Japanese fed on rice diets. The tobacco-alcohol type may be a type of this, as these patients are frequently undernourished, though the toxic effects of tobacco and alcohol cannot be discounted. The tobacco-alcohol type is frequently found associated with an undiagnosed diabetes and the field defect is caecocentral with one or two dense nuclei.

Treatment consists of abstinence from tobacco and alcohol along with massive doses of vitamins especially the B complex.

The characteristic pathological picture of optic neuritis is perivascular lymphocytic infiltration with transudation of plasma leucocytes and red cells into the perivascular spaces.

In acute cases there is arteriolar spasm which limits the passage of oxygen to the capillaries, allowing a capillary anoxia and dilatation, causing them to become more permeable. This in turn, leads to edema and round cell infiltration. If this anoxia occurs for a sufficient length of time, necrosis and infarcts may occur.

In multiple sclerosis the pathological picture is somewhat the same with the demyelination of the axis cylinders with localized necrosis early and sclerotic placques later, followed by gliosis. Multiple sclerosis, while still of debatable origin, is thought to be an allergic reaction to neurotropic antigens originating within the nervous system, which in turn produce the recurrent anaphylactic reactions to sensitized portion throughout the nervous system. Actually the exact cause is unknown.

FINDINGS OF OPTIC NEURITIS

Visual Field Defects: Again a great variety of field defects may be found. The characteristic defect is a central or caecocentral scotoma. This scotoma may involve the blind spot, in which case the area of the blind spot may be enlarged. I doubt the actual occurrence of an enlarged blind spot in the absence of a caecocentral scotoma which involves this area, except in pure papillitis. An enlarged blind spot has been described concurrently with the caecocentral scotoma by a number of authors.

The scotoma is more pronounced for colored than white objects. And the scotoma for red is found to be greatest, and the first color lost. In chorioretinal disease blue is lost first.

The scotoma may be quite small and may be actually paracentral with the central vision remaining unaffected. In other cases, the scotoma may be complete. It may "break through" to the periphery at one point and the peripheral fields may be constricted. The scotoma may be hemianopic, or quadrantic, depending on the type of nerve involvement. There may be one or two dense nuclei in the scotoma, especially in the nutritional and tobacco-alcohol type.

The scotoma in optic neuritis is negative, while in chorioretinal disease it is positive and associated with macropsia, micropsia, or metamorphosia. The various scotomatous areas vary considerably with the area of neuritis, so that an area of neuritis at the chiasm would produce a different picture than one more anteriorly or posteriorly placed in the nerve. A chiasmal lesion may cause a homonymous, hemianopic quadrantic or bitemporal defect, while if placed further back, may tend to be more homonymous hemianopic. The shape of the scotomata for the two eyes, if bilateral defects are found, may be a localizing sign. The amount of incongruity would also be an important feature in locating the lesion. The scotomata would vary also as to whether the affliction of the nerve was peripheral or axial. Careful and serial field studies should be made in any case to chart the course of the disease.

Defects in light sense have been described but are not diagnostic.

Pupillary Changes: There are changes

from lack of response in complete blindness to sluggishness paralleling the degree of visual loss. The characteristic finding is that of constriction to light stimulus with dilatation following in the presence of the same stimulus and has been found to be of no real diagnostic value.

Changes in the Cerebrospinal Fluid: The spinal fluid is normal, except in multiple sclerosis, when the protein may be found to be increased, and the colloidal gold may show strong first zone changes. In cases secondary to meningitis, consistent findings are, of course, found.

Temporal Pallor of the Disc: This is a characteristic finding following optic neuritis. This is due to atrophy of papillomacular bundle which occupies this portion of the disc. However, temporal pallor is so frequently found in eyes with no other findings that it may be declared normal to a large extent. It is also found in deep cupping of the disc and high myopia. These factors must be kept in mind when temporal pallor of the disc is found.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis between papillitis and papilledema has been elaborated upon previously.

One must bear in mind central chorioretinitis which may be seen ophthalmoscopically. In the very early stages before retinal changes are found, the field for blue may be a differentiating point. It is interesting, however, that in quinidine poisoning the field for blue and red is reversed. Also, the image, size, and shape may be a differentiating point in early cases.

Intracranial tumors must be considered. In the presence of papilledema (and some observers state that some swelling of the nerve head is found in nearly all cases), subjective symptoms and other neurological and x-ray signs are diagnostic, and field studies may be only supporting data.

TREATMENT

In all acute forms the treatment is practically the same — ACTH and cortisone. Cortisone and ACTH are at least worth a trial, as any means to decrease the inflammatory process is in order. They are of no value in multiple sclerosis and may be of great general harm following meningitis of tuberculous origin. In general, treatment of optic neuritis is of little good. General supportive treatment, designed to increase the general health, is in order. B complex is at best psychogenic therapy as there is little to indicate that the B vitamins actually decrease the severity of the inflammation of the nerves. However, in nutritional cases massive doses are indicated. Vasodilators are widely used, though I doubt their general efficacy.

The time honored fever therapy may be safely employed even in the face of an old or recent tuberculosis. This is thought to be due to the fact that though the corticosteroids are increased in the blood stream during the reactions, the duration is not sufficient to produce harm to other structures. Fever therapy (killed typhoid bacilli or boiled milk or typhoid H antigen) may and often should be used in conjunction with ACTH and cortisone and the vasodilators. Antibiotics should be employed when an active focus or foci of infection are demonstrated, and I believe should always be used when surgery on a focus of infection is to be performed.

CONCLUSIONS

1. Optic and retrobulbar neuritis are caused by a multitude of agents.

2. The differential diagnosis is quite frequently difficult.

3. Visual fields are varied, and while diagnostic in some cases, require great skill in interpretation and can be only contributory data in a large number of cases. A central or caecocentral scotoma is characteristic.

4. The course is not always short and without sequellae.

5. Treatment for the most part is supportive, as the process will either resolve spontaneously or progress to atrophy, though every effort should be employed to ameliorate the symptoms. Corticosteroids and corticotropin alone, or in conjunction with foreign protein therapy, should be

used unless contraindicated by the patient's general condition. Massive vitamin therapy is indicated in nutritional cases.

6. The ophthalmoscopic picture must be considered along with other data.

7. This paper is incomplete because of the vastness of the information accumulated, and the time allotted for its presentation.

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ENCROACHMENT BY OPTOMETRISTS UPON THE FIELD OF MEDICINE

The practice of medicine should be done by physicians. Attempts by those not qualified to practice medicine are numerous. In some instances the efforts center around plain quackery. In others, there may be a desire to extend a technical procedure into a limited field of practice where only a physician should have direction. In recent years certain important groups in optometry have determined to gain legal sanctions to diagnose and treat ocular diseases and to perform ocular surgery. The partial success of these efforts on the part of optometrists, or at least certain individuals in their groups, and the character of the laws proposed are a cause for grave concern to all who uphold the standards and ethical principles of organized medicine.

In the field of federal legislation there have been three statutes concerning the field of optometry, and the first was an act in 1924 dealing with the practice of optometry in the District of Columbia. By definition and by specification the practice of optometry was to be limited to the use of technical methods and devices in the examination of the human eye for purposes of determining visual defects and the adaptation of lenses for aid and relief thereof. It prohibited medicine or surgery and prohibited prescriptions or treatment of the eyes. Another statute in this field contained in an amendment to the Social Security law was passed by the 81st Congress. This provides that in the determination of whether a person is blind for the purpose of receiving government aid, either a physician skilled in the diseases of the eye or an optometrist could make the official determination. Congress by enacting this statute authorized optometrists to make a determination which is ordinarily outside the scope of their practice. The same Congress, in 1949, provided for optometry sections in the Medical Service Corps of the Army and the Navy.

All forty-eight states have laws defining and regulating the practice of optometry. The use of drugs and surgery is forbidden in twenty-one. In seventeen additional states optometrists cannot use drugs. In the statutes of the last five years the optometric laws themselves do not reveal any trend towards widening the scope of practice, but other laws clearly do so. These are workmen's compensation laws, school laws, laws providing aid for the blind, and the anti-discrimination laws. Thirty-five states now permit optometrists to certify that a person is blind so that he may qualify for state financial

assistance. Four states have passed laws which provide optometrists are not to be discriminated against by state and local governments in the ocular field; and Florida additionally provides that optometrists' testimony is to be accepted as expert testimony in legal actions involving the human eye.

The aggressive attitude of the optometrists association is further shown by a statement of a past president: "We look upon vision care as a specialty in the broad health field, and optometry, incidentally is the only profession specially licensed to care for vision." Also, a resolution adopted at the annual congress of the American Optometric Association, at Seattle, in 1954, read in part as follows: "Resolved that it is the stated policy of the American Optometric Association in convention assembled that the field of visual care is the field of optometry and should be exclusively the field of optometry." A proposed optometric act for the state of Oklahoma would redefine optometry, extending it to cover all of ocular medicine except surgery, and deny to all except certain physicians the right to practice what is defined as optometry. This, if enacted, would have the effect of regulating medical practice by a nonmedical group outside of the Medical Practice Act.

In Louisiana, a proposed amendment to the optometry act would have regulated the physician in twenty-one provisions, thus amending to that extent the provisions of our Medical Practice Act.

The aims indicated by state legislation and statements such as these are not those of all optometrists. There are many who hold to the historical position of the refracting optician whose aim it was to affect only the light and not the eye, and to avoid attempts to penetrate the involved mysteries of medical practice.

The position of the ophthalmologists in this situation is one of considerable concern. The medical profession in general and ophthalmology in particular have encouraged the optometrist to make himself more competent in his field of nonmedical refraction, but believe that every individual should be referred to an ophthalmologist, who does not attain normal vision with glasses, or who has any eye complaint not relieved by glasses. The optometrist should not attempt to select individuals for referral to the ophthalmologist on the basis of the determination of the presence of disease. He is not qualified to make such diagnosis. Attempts by certain optometrists to arrange medical consultations for an individual requiring eye care, and at the same time maintain themselves in the position of directing that care, constitute a danger for the patient and for the physician. A disease process in the eye, which should be treated by an ophthalmologist, may advance while the eye is under optometric direction to the point at which proper therapy may not be effective.

The position of the American Medical Association during most of the thirty and more years that these matters have been before the House of Delegates has been that voluntary associations with optometrists are unethical.

The physician who prescribes cycloplegic and other drugs, so that the optometrist may then refract, may precipitate glaucoma in patients who have never had a previous attack. In such a situation, the physician would bear the brunt of legal action, since a malpractice suit against the optometrist would not apply.

From these considerations it is apparent that a serious struggle is in process. An aggressive group of optometrists wishes to extend their field, and presumably, exclude by legal means the ophthalmologist from the fitting of glasses. The position of the public, which in this instance and most others does not know what is good for it, is confused. The public does not know that the optometrist's function is to fit glasses to eyes that are not diseased. The position of the physicians is that further encroachment on the

practice of medicine by the optometrist should be prevented, and that the legal right of optometrists to determine blindness, for Social Security or other purposes, should be revoked. Physicians everywhere should be continuously watchful of the attempts to extend the field of optometry by legal means.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

1958 ANNUAL MEETING

Have you paid your 1958 dues so that you will be eligible to attend the 1958 Annual Meeting? It is also necessary for dues to be paid in order for doctors to receive medical defense protection.

Have you made your hotel reservations? A communication was recently sent to each member of the Society in which was enclosed a card for use in making requests for accommodations. Be sure to take care of this matter at once. The meeting will be held at both the Captain Shreve and Washington-Youree Hotels.

Have you made request for scientific exhibit space? It is hoped that the exhibit will be an outstanding one and that many members will participate in this phase of the meeting. Recognition will be given the two exhibits selected for first and second place awards by a secret committee.

The scientific program is nearing completion and all indications are that many subjects of interest will be presented.

The cocktail party and dance scheduled for Tuesday, May 6 should be a gala social function and it is anticipated that it will be enjoyed by all; Jan Garber will furnish the music for this occasion.

Make your plans to attend all sessions possible and be sure to visit the technical exhibits as often as you can while at the meeting.

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Secretary: Dr. W. R. Aderhold, 909 Sixth Street, Alexandria

HOSPITAL PARTICIPATION IN MEDICARE PROGRAM

The cost to the government for that part of the Medicare program being administered by Mutual of Omaha is running less than was agreed upon, an executive from that insurance company said in Chicago recently. John J. Wrabetz, Administrator of the Medicare Dept. for the insurance firm, addressed the annual group Insurance Forum sponsored by the Health Insurance Association of America held on February 18 at the Drake Hotel for three days.

In June 1957, Mr. Wrabetz noted, a negotiated rate of $1.43 per claim was agreed upon between the government and the insurance company. By the end of 1957, he reported, Mutual of Omaha's experience indicates that the cost to the government for providing medical care to dependents of military personnel is now less than $1.30 per claim, a saving to the government of over 10 per cent.

One of the most significant features of the Medicare program, Mr. Wrabetz observed, is the freedom given the dependent in choosing between military and civilian medical facilities for treatment. Insofar as use of civilian facilities is concerned, he added, the dependent "is given full freedom to choose any doctor or hospital who will

agree to handle them under the program."

Medicare is designed to provide not the most expensive service, nor least expensive, but good medical-hospital service, Mr. Wrabetz explained. Under the program, hospitals are reimbursed at their regular rate for semi-private facilities. In cases where hospitals have just private room accommodations available, 90 per cent of such room charges, up to $15 a day, are paid. Hospitals have been very cooperative in the administration of the Medicare program, he said.

Mutual of Omaha, which is the prime insurance company contractor for the government-sponsored program in 17 states, is carrying on a program of education among service dependents to give them an understanding of what benefits are available through Medicare, Mr. Wrabetz pointed out. The medical care program initiated by the federal government a year ago has two major categories: those eligible for civilian care; and those eligible for service care.

Only the dependent wife or spouse and unmarried children are eligible for care in civilian facilities, the speaker emphasized. He said that some hardship and ill-will has resulted because some parents of military personnel thought they were eligible for civilian hospital care under the Medicare program. However, Mr. Wrabetz said, the new dependents' identification card now in use should correct this situation.

Medicare has had considerable use in its first year and has met with quick acceptance among more than 2 million dependents of service personnel, Mr. Wrabetz indicated. He said that in the first year of operation, Mutual of Omaha handled 106,000 hospital claims with a total dollar value of over $11 million. Present indications are that claim volume should level off between 10,000 and 12,000 claims a month, he added.

The majority of claims presented, the speaker continued, have been for female dependents. Studies conducted by the Office for Dependents' Medical Care indicate that 80 per cent of the cases sampled were for treatment of women—the other 20 per cent consisting mainly of male children under 14 years of age.

Air Force dependents are giving Medicare the most usage, accounting for 40 per cent of the claims submitted nationally from December 6, 1956, to July 1, 1957. Navy dependents followed with 30 per cent, and dependents of Army personnel submitting 27 per cent of total claims. The Public Health Service accounted for 2.3 percent of the total claims submitted.

In concluding his report to the annual meeting of insurance executives, Mr. Wrabetz said that Medicare has been generally well accepted by physicians and hospitals, as well as the dependents of the uniformed services. It is helping many dependents who would otherwise have been unable to receive medical care in military hospital facilities and is reaching an ever greater number of hospitals and doctors.

The Health Insurance Association of America is a trade association of 264 insurance companies in the United States and Canada which serve the public through voluntary health insurance. Member companies account for 80% of the health insurance in force in the country written by insurance companies.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

ELEVENTH ANNUAL RUDOLPH MATAS LECTURE

Dr. Michael E. DeBakey, professor and chairman of the department of surgery at Baylor University College of Medicine, will deliver the Eleventh Annual Rudolph Matas lecture, March 14, at 4 p.m. in the Hutchinson Memorial Auditorium of Tulane School of Medicine. He will

speak on "Changing Concepts in the Surgery of Aortic and Arterial Diseases."

The lecture is sponsored by the Beta Iota Chapter of Nu Sigma Nu.

Dr. DeBakey is a graduate of Tulane University and earned his medical degree at Tulane School of Medicine. He took his residency at Charity Hospital in New Orleans and was on the faculty of the department of Surgery at Tulane. He was associate professor of surgery at the time he left to become chairman of surgery at Baylor in 1948.

AMERICAN COLLEGE OF CHEST PHYSICIANS

April 12—Baton Rouge

The Louisiana Chapter of the American College of Chest Physicians will hold its semi-annual (spring) meeting on April 12, 1958 at the Belmont Motel, Baton Rouge, Louisiana.

The scientific program is as follows:

April 12, 1958

2:00 p.m.

PANEL I

"The Diagnosis and Management of Congenital Heart Disease"

Moderator: Dr. Richard Fowler, New Orleans, Louisiana

Panelists: Dr. John Stotler, Baton Rouge, Louisiana

Dr. Page Acree, Baton Rouge, Louisiana

Dr. David Van Gelder, Baton Rouge, Louisiana

3:00 p.m.

PANEL II

"Obstructive Diseases of the Esophagus"

Moderator: Dr. Charles Beskin, Baton Rouge, Louisiana

Panelists: Dr. Dennis Rosenberg, New Orleans, Louisiana

Dr. Louis Ochs, New Orleans, Louisiana

Dr. R. C. Boyer, Baton Rouge, Louisiana

4:00 p.m.

PANEL III

"Granulomatous Diseases of the Lung"

Moderator: Dr. Dwight Danburg, Baton Rouge, Louisiana

Panelists: Dr. Walter McCook, Shreveport, Louisiana

Dr. Albert McQuown, Baton Rouge, Louisiana

Dr. John Seabury, New Orleans, Louisiana

5:00 p.m.

Business Meeting

6:00 p.m.

"Dutch Treat" Buffet Supper

A.M.A. DRAFTS NEW GUIDE TO DEFINE FORMS OF DISABILITY

The American Medical Association announced on February 14 publication of an important new document: a guide for physicians' use in medically rating persons under disability programs.

This guide to the evaluation of permanent impairment of the extremities and back is considered so important to physicians and administrators of many organizations vitally interested in disability that it is being published as a separate 117-page edition of the February 15 issue of the Journal of the American Medical Association.

Editor Austin Smith, M.D., said that it marks the first time that the A.M.A. Journal has ever devoted a special edition to a specific subject.

SOCIAL SECURITY FOOTNOTES

In the first five months of the 85th Congress, the lawmakers introduced more than a hundred bills designed to broaden the Social Security Program in one way or another. Such open-handed proposals invariably win acclaim, and more tangible rewards at the polls, for their sponsors. But the alarming fact is that years ahead of schedule, the growth of the Old Age & Survivors Insurance Trust Fund has come to an end. At the moment it is paying out more than it is taking in. This unexpected deficit should serve as a red flag to the Treasury, the taxpayer, and all those who are looking forward one day to receiving retirement checks of their own. However generous its motives, even a federal pension fund cannot go on incurring obligations which exceed its resources.

American medicine would do well to study the plight of physicians in Britain and France before accepting financial arrangements that would make them sitting ducks for capture by Government.

"A dangerous thing about Social Security in the United States," said Ray D. Murphy, president of Equitable Society, "is that the American people have not yet come to realize that more can be given only by taking more. The nation simply does not get something for nothing in Social Security."

OASI is a system under which the active workers and their employers are contributing the taxes necessary to pay benefits to their fellow citizens on the benefit rolls. The active workers now covered under the system must look for their own old-age benefits, not in any large measure to the Trust Fund, which is only a moderate buffer fund to cover temporary excess of benefit payments over tax receipts, but mainly to the willingness of the next generation of active workers to pay the increased taxes out of which the retirement benefits will come.

Long term results of the trend toward Big Pensions and its sponsor Big Government are to be feared. Rewards by government for long

life to all the people begins a leveling or averaging process that destroys individuality and initiative. It encourages the welfare state by placing responsibility for a great portion of our people solely in the hands of government.

ANIMALS GOOD RISK AS PETS FOR CHILDREN

The joy that children receive from pets, particularly dogs and cats, far outweighs the danger incurred from bites and disease that the animals may inflict on them.

This was revealed in an article by Dr. Hugh A. Carithers, of Jacksonville, Fla., which appears in the February issue of the Journal of Diseases of Children, published by the American Medical Association.

The report noted no serious or lasting effects to 157 children who had been bitten by one of 10 species of animals during the 20-month study.

The majority of children bitten were between the ages of 2 and 10 years. "This is during the time when parental protection wanes and the adventurous spirit takes over," said Dr. Carithers. He added, "After the 10th year a child has attained considerable discretion in handling animals.

A boy's natural aggressiveness towards animals was illustrated by the fact that males held a 3 to 2 ratio over females in the number of bites.

Seasonal factors seem to have little or no importance as to when an animal might attack. No less than 4 nor more than 15 cases were recorded in any one month.

Of the various animal bites examined during the survey, the dog was the most frequent offender. "To his credit, however, it should be pointed out that the child was usually at fault," Dr. Carithers said.

PREMATURE GRAY HAIR CARE HINTS LISTED

About 25 per cent of the population has premature gray hair. Some of these people, who include more men than women, conceal it, some simply live with it, and others turn it into a striking asset.

Some hints for turning it into an asset were listed in the June Today's Health, the American Medical Association's popular health magazine, by a prematurely gray author, Mrs. Ruth Boyer Scott, Washington, D. C.

Premature gray hair presents a few gray hairs in infancy or childhood, the hair is noticeably gray in the twenties and snowy by 35 or 40, Mrs. Scott said. Normal graying begins with a few gray hairs around 35 and probably never reaches the snowy stage naturally. The term "gray hair" is not literally true, she said. Most gray hair gets its gray effect from a mixture of normally colored hair and a growing number of white hairs.

"No preventive for gray hair, other than choosing your ancestors carefully, is known today," she said. Neither is there any cure. However, Mrs. Scott recommended some ways of handling gray hair.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

If during the past two months you have heard high school girls and boys "talking essay," chances are it was the essay being sponsored by the Woman's Auxiliary to the Orleans Parish Medical Society. This year there was a choice of topics: "The Advantages of the American Free Enterprise System" or "The Advantages of Private Medical Care".

The contest conducted on a national level and sponsored annually by the Association of American Physicians and Surgeons and locally by the Medical Auxiliary closed February 25.

The Essay Contest is one of the 'pet projects' of Mrs. Eugene H. Countiss, president of the Woman's Auxiliary to the Orleans Parish Medical Society, and she appointed Mrs. Nicholas Chetta, Chairman, and Mrs. Phillip B. Johnson, co-chairman.

Mrs. Chetta announced that the following schools had participated and were sponsored by the members of the Auxiliary:

Annunciation High, Mrs. I. Medina, Jr.; Benjamin Franklin, Mrs. Edwin R. Guidry; Behrman, Mrs. John Tanner; Cor Jesu, Mrs. Rafael C. Sanchez; De La Salle, Mrs. Branch J. Aymond; Dominican, Mrs. Lawrence D. Kavanagh; Fortier, Mrs. Monte Meyer; Holy Angels Academy, Mrs. Ashton Thomas; Holy Cross, Mrs. Percy Phillips; Holy Name, Mrs. Nathan Gisclair; Jesuit High, Mrs. Byron J. Casey, Jr.; McGehee, Mrs. Eugene H. Countiss; John McDonogh High, Mrs. Joseph V. Gregoratti; Mt. Carmel, Mrs. Robert Rougelot, Jr.; Newman, Mrs. Robert C. Kelleher; Nicholls, Mrs. Nicholas Chetta; New Orleans Academy, Mrs. O. L. Pollingue; Redemptorist, Mrs. Joseph Hountha; Rugby Academy, Mrs. Nicholas C. Montalbano; Sacred Heart Academy, Mrs. J. Brown Larose, Jr.; Sacred Heart High, Mrs. John DiLeo; St. Joseph Academy, Mrs. James L. Treadway; St. Joseph High, Mrs. Edwin R. Guidry; St. Stephens Girls School, Mrs. I. Medina, Jr.; Ursuline Academy, Mrs. Nicholas Chetta; Warren Easton, Mrs. Edwin R. Guidry.

The essays will be read and judged in March

and the awards presented the winners at the April meeting of the Medical Auxiliary at the Orleans Club. The winners in New Orleans will have an opportunity to compete in the state contest and the three top essays from the state go to National.

Mrs. Branch J. Aymond,
Chairman of Publicity.

BOOK REVIEWS

Diseases of the Chest; by H. Corvin Hinshaw, M.D. and L. Henry Garland, M.B., Philadelphia, Pa., 1956, Pp. 727, illus. 634, $15.00.

This work furnishes an extensive and well-organized presentation of the current position in the field of chest diseases. The recent advances and older knowledge are presented in proper perspective. The section on tuberculosis is actually a modern monograph; at least 141 pages are devoted to this important disease. The chapters are all of high quality: some are particularly fine. It would be difficult to find discussions of tuberculosis, coccidioidomycosis and pulmonary emphysema which match those in this book.

The material is presented in standard fashion. General diagnostic, anatomical and physiological principles are discussed before the individual diseases are described. The important diagnostic methods are given in detail. The value of radiography is fully emphasized and typical x-ray films are included in all of the chapters. The films demonstrated can easily serve as a practical radiographic atlas of chest diseases.

The author has combined their clinical, bacteriological and radiological skills to create a fine modern single volume textbook of thoracic diseases. It will be of great service to students of medicine and general physicians. The specialist in chest diseases will also welcome this excellent summary of his specialty.

Morton M. Ziskind, M. D.

New Bases of Electrocardiography; by Demetrio Sodi-Pallares and Royall M. Calder, St. Louis, Missouri, C. V. Mosby Company, 1956, pp. 727, $18.50.

Dr. Demetrio Sodi-Pallares, the Chief of the department of electrocardiography at the National Institute of Cardiology of Mexico needs no introduction to cardiologists of this country, as many of his original publications have appeared in the American Heart Journal. The present book in English represents a translation and to some extent a revision of the third Spanish edition of his highly regarded "Nuevas Bases de la Electrocardiografia." Hence the somewhat unusual but nonetheless very appropriate English title. The translation has been ably edited by Dr. Royall M. Calder of San Antonio, Texas.

With the wealth of electrocardiographic texts available in English one might express surprise that the effort has been made to translate and publish still another. Those familiar with the third Spanish edition know why the effort was made. To quote the words of Chavez in the Foreword: "The clinician has available for learning diagnostic electrocardiography, many books, large and small, . . . but books that teach and discuss the scientific bases on which the procedure rests, or all the experimental work that has been done to elaborate it, are very few. Such a book is what Dr. Sodi-Pallares gives us here."

It is a volume of 727 pages including the index, a bibliography of 960 references and a 70-page appendix of mathematical derivations and theorems of importance for a fundamental understanding of the subject. The text proper is divided into eleven chapters, three of them dealing with the principles of electricity, electrophysiology and injured muscle. One chapter is a notably complete account of the activation process of the human heart and the final three chapters are devoted to vectorcardiography, the ventricular gradient and the intracavitary potential. The chapter on precordial leads of 141 pages treats the clinically important matters of ventricular hypertrophy, bundle branch block and myocardial infarction in an admirable manner. One notes in this chapter perhaps better than elsewhere the nice balance between the largely Wilsonian precepts of rational electrocardiography and the more empirical approach of systematic clinicopathologic correlation. In both these approaches the school of Sodi has made significant contributions.

This book is warmly recommended to all those who are "concerned with the 'how's' and 'wherefore's' in electrocardiography."

E. B. Ferguson, Jr., M. D.

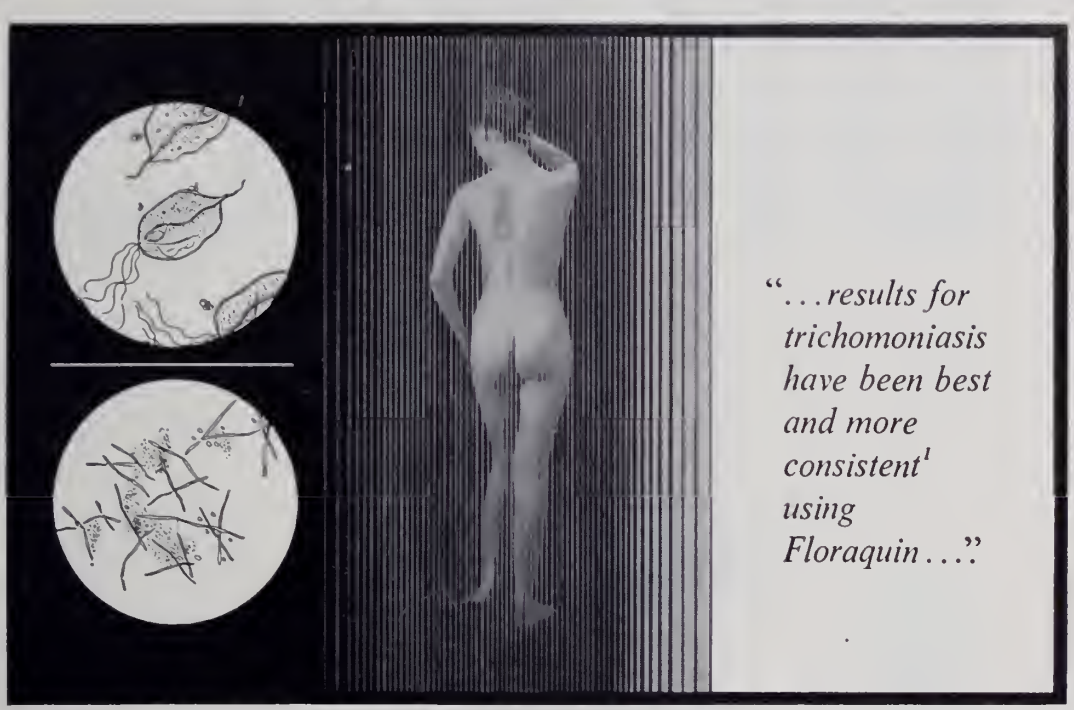
PUBLICATIONS RECEIVED

Grune & Stratton, N. Y.: The Functional Organization of the Diencephalon, by W. R. Hess, edited by John R. Hughes, M. A., Ph.D.; Noise and Your Ear (Modern Monographs in Industrial Medicine), by Aram Glorig, Jr., M. D., Editor-in-Chief, Anthony J. Lanza, M. D.

Philosophical Library, N. Y.: The Neuroses and Their Treatment, edited by Edward Podolsky, M. D.; Physical Methods in Physiology, by W. T. Catton, M. Sc.

Charles C Thomas, Publisher, Springfield, Ill.: The Chemistry of Blood Coagulation, by Paul Morawitz and translated by Robert C. Hartmann, M. D., and Paul F. Guenther, M.A., Ph.D.

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Pitt[1] recommends vaginal insufflation of Floraquin powder daily for three to five days, followed by acid douches and the daily insertion of Floraquin vaginal tablets throughout one or two menstrual cycles. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

---

1. Pitt, M. B.: Leukorrhea. Causes and Management, J. M. A. Alabama *25*:182 (Feb.) 1956.
2. Parker, R. T.; Jones, C. P., and Thomas, W. L.: Pruritus Vulvae, North Carolina M. J. *16*:570 (Dec.) 1955.

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15 mg. (1/4 grain)—prolongs action

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Average prophylactic dose:
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Therapeutic dose:
1 tablet held under the tongue until citrus flavor disappears, then swallowed.

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Hospital practice of infant feeding

Standard formulas for PREMATURES

Breast milk is satisfactory for the feeding of prematures in spite of the low protein and mineral and high fat content. But eventual formula feeding should provide a high protein and carbohydrate to satisfy the rapid-growing needs of the premature and low fat content because of limited digestive capacity.

Feedings of small prematures are most effectively administered by the indwelling polythene nasal catheter and of large prematures, by bottle with small nipples.

The first six feedings should be a sterile 5% solution of Karo Syrup at 2 to 3 hour intervals; for subsequent feedings, breast milk or formula should be added in gradually increasing amounts according to tolerance and requirements, as indicated in the table below.

Initial feeding schedules for premature infants

(Feedings Started After 36 Hours and Continued at 2 to 3 Hour Intervals)

FEEDINGS	COMPOSITION	QUANTITY
First Six	5% Karo	2-5 ml.
7th and 8th	2 parts 5% Karo 1 part breast milk or formula	6-10 ml.
9th and 10th	1 part 5% Karo 1 part breast milk or formula	8-15 ml.
11th and 12th	1 part 5% Karo 2 parts breast milk or formula	10-18 ml.
Subsequently	Breast or formula feeding	12-20 ml.

ADVANTAGES OF KARO® IN INFANT FEEDING



Composition: Karo is a superior maltose-dextrin mixture because the dextrins are non-fermentable and the maltose is rapidly transformed into dextrose which requires no further digestion.

Concentration: Volume for volume Karo furnishes twice as many calories as similar milk modifiers in powdered form.

Purity: Karo is processed at sterilizing temperatures, sealed for complete hygienic protection and devoid of pathogenic organisms.

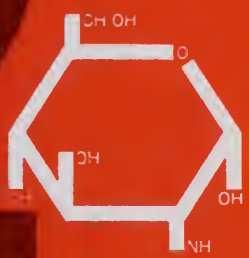
Low Cost: Karo costs 1/5th as much as expensive milk modifiers and is available at all food stores.

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2 ***Greatest consistency of higher tetracycline blood levels*** Not only does glucosamine considerably increase antibiotic blood levels faster, but it produces these higher blood levels more consistently as shown by extensive crossover tests



3 ***Achieved with the physiologic advantages of glucosamine,*** a normal human metabolite. Glucosamine, found widely in the body, is nontoxic and does not irritate the gastrointestinal tract; there is evidence that glucosamine may favorably influence the bacterial flora of the intestine. Further, it is sodium free and releases only four calories of energy per gram

in new well-tolerated

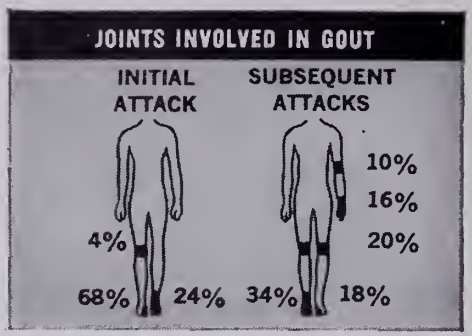
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Capsules, 250 mg., 125 mg.
Half strength (125 mg. capsules) for long-term indications or pediatric use.

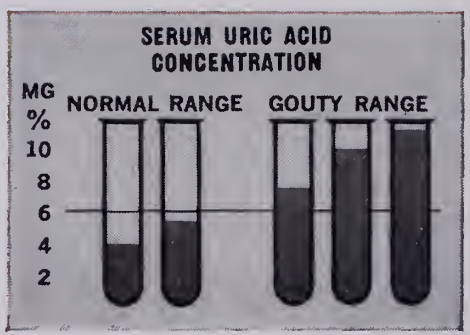
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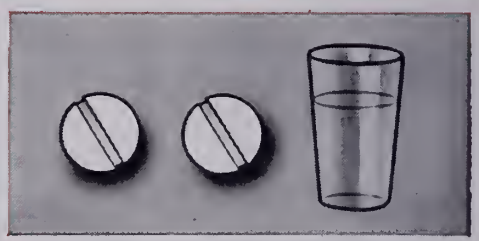
1. Recurrent joint pain followed by long periods of complete remission. *(Percentages refer to incidence.)*



2. Enlargement of bursae such as in this case involving the olecranon bursa.



3. Elevated serum uric acid levels.



4. Colchicine test: full dose (0.5 mg.) every 1 to 2 hours until pain is relieved or nausea, vomiting or diarrhea occur. The test requires usually 8 to 16 doses. Pain relief is highly indicative of gout.

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A SPECIFIC FOR GOUT

Once findings point to gout, long-term management can be started with BENEMID. This effective uricosuric agent has these unique benefits:

- Urinary excretion of uric acid is approximately doubled.
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- Formation of new tophi can often be prevented.
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The psychological needs of the elderly confront physicians with one of their most perplexing problems. Perhaps no other patient group suffers so much from emotional distress. Yet, precisely because of their age, geriatric patients often seem beyond the reach of tranquilizing treatment.

When tranquilization seems risky . . .

They are too much beset by complicating chronic ailments, too susceptible to serious side effects. Ataraxia is clearly indicated, yet the doctor cannot risk side reactions on liver, blood or nervous system.

Is there an answer to this dilemma?

We feel there is. In four recent papers investigators have reported good results with ATARAX in patients up to 90 years of age.* In one study, **improvement was "pronounced" in 76%, "good" in an additional 18.5%.*** ATARAX has been successfully used in such cases as senile anxiety, agitation, hyperemotivity and persecution complex.* On ATARAX, patients became ". . . quieter and more manageable. They slept better and demonstrated improved relations with other patients and hospital personnel. Even their personal hygiene improved, and they required less supervisory management."*

. . . ATARAX is safe

Yet even in the aged, ATARAX has given "no evidence of toxicity. . . . Complete liver function tests and blood studies were made on all patients after two months of therapy. . . . There were no significant abnormalities."* With still other elderly patients "tolerance to the drug was excellent, even in cases where the patients were given relatively high doses."* Similarly, no parkinsonian effects have been observed on ATARAX therapy.

Nor does ATARAX make your patients want to sleep all day. Instead, they can better take care of themselves, because ATARAX leaves them both calm and alert. In sum, ATARAX ". . . does not impair psychic function and has a minimum of side effects. . . . It appears that ATARAX is a safe drug. . . ."*

These, undoubtedly, are the results you want when emotional problems beset your geriatric patients. For the next four weeks, won't you prescribe tiny ATARAX tablets or pleasant-tasting ATARAX syrup — both so readily acceptable to the elderly.

*Documentation on request

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in any hyperemotive state

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for severe emotional disturbances
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"... the degree of increase in exercise tolerance which sublingual erythrol tetranitrate permits, approximates that of nitroglycerin, amyl nitrite and octyl nitrite more closely than does any other of the approximately 100 preparations tested to date in this laboratory."

"Furthermore, the duration of this beneficial action is prolonged sufficiently to make this method of treatment of practical clinical value."

Riseman, J. E. F., Altman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites in the Treatment of Angina Pectoris. Circulation (Jan.) 1958.

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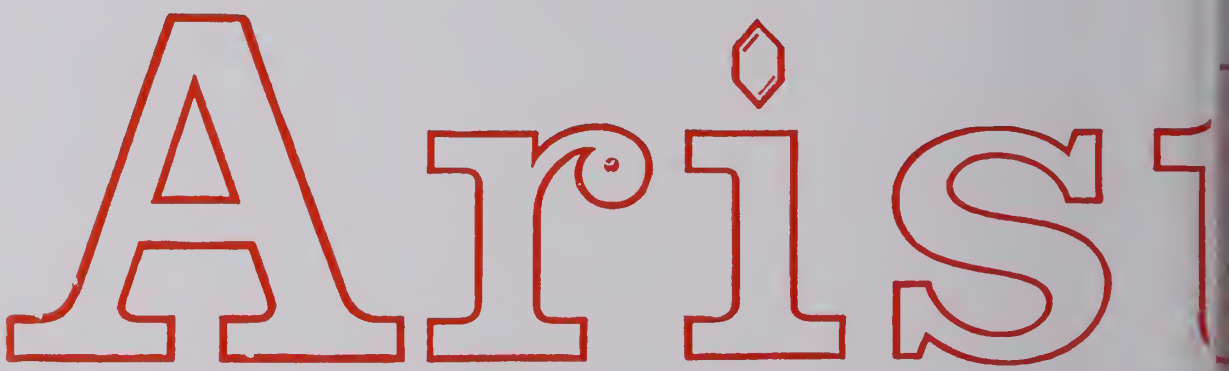
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The Achievement in Rheumatoid Arthritis: Impressive therapeutic effect in most cases of a group of 89 patients[4]...6 mg. of ARISTOCORT corresponded in effect to 10 mg. of prednisone daily (in addition, gastric ulcer which developed during prednisone therapy in 2 cases disappeared during ARISTOCORT therapy).[5]



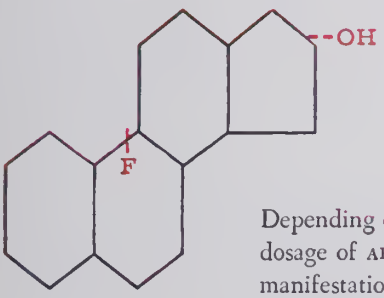
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11. Segal, M. S.: Personal Communication.
12. Cooke, R. A.: Personal Communication.
13. Dubois, E. L.: Personal Communication.

The Achievement in Respiratory Allergies: "Good to excellent" results in 29 of 30 patients with chronic intractable bronchial asthma at an average daily dosage of only 7 mg.[6]... Average dosage of 6 mg. daily to control asthma and 2 to 6 mg. to control allergic rhinitis in a group of 42 patients, with an actual reduction of blood pressure in 12 of these.[7]

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relief in minutes..lasts for hours

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With *topical* decongestants, "unfortunately, the period of decongestion is often followed by a phase of secondary reaction during which the congestion may be equal to, if not greater than, the original condition. . . ."* The patient then must reapply the medication and the vicious cycle is repeated, resulting in local overtreatment, pathological changes in nasal mucosa, and frequently "nose drop addiction."

Triaminic does not cause secondary congestion, eliminates local overtreatment and consequent nasal pathology.

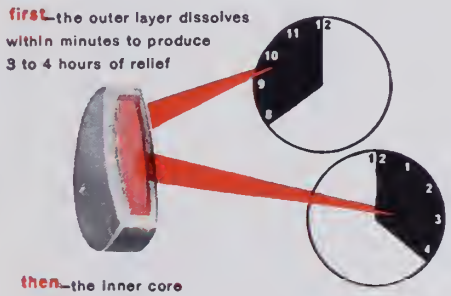
*Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

Each double-dose "timed-release" TRIAMINIC *Tablet contains:*

Phenylpropanolamine hydrochloride	50 mg.
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Pheniramine maleate	25 mg.

Dosage: 1 tablet in the morning, afternoon, and in the evening if needed.

Each double-dose "timed-release" tablet keeps nasal passages clear for 6 to 8 hours—provides "around-the-clock" freedom from congestion on just three tablets a day



Also available: Triaminic Syrup, for children and those adults who prefer a liquid medication.

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"timed-release" tablets

running noses . . . and open stuffed noses orally

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- far less gastrointestinal distress
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- and on a lower daily dosage range

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against staph-, strep- and pneumococci



Indications

ERYTHROCIN is indicated in treating infections caused by staphylococci, streptococci (including enterococci), and pneumococci. Indicated also, in treating infections that have become resistant to other antibiotics. May be used for patients who are allergic to penicillin or other antibacterials.

Dosage

Usually administered in a total daily dose of 1 to 2 Gm., depending on severity of infection. Suggested dose is 250 mg. every six hours; for severe infections, usual dose is 500 mg. every six hours.

Supplied

In bottles of 25 and 100 *Filmtabs* (100 and 250 mg.). Also, in tasty, cinnamon-flavored oral suspension, in 75-cc. bottles. Each 5-cc. teaspoonful represents 100 mg. of ERYTHROCIN activity.

®Filmtab—Film-sealed tablets, Abbott, pat. applied for.



REMARKABLE EFFECTIVENESS PLUS A SAFETY RECORD UNMATCHED IN SYSTEMIC ANTIBIOTIC THERAPY TODAY

Actually, after almost six years of extensive use, there has not been a single report of a serious reaction to ERYTHROCIN. And, after all this time, the incidence of resistance to ERYTHROCIN has remained exceptionally low.

You'll find ERYTHROCIN is highly effective against the majority of coccal infections and may also be used to counteract complications from severe viral attacks. It comes in *Filmtabs* and in Oral Suspension. Abbott

802069

Compocillin-V®

for those penicillin-sensitive organisms



Indications

Against all penicillin-sensitive organisms. For prophylaxis and treatment of complications in viral conditions. And as a prophylaxis in rheumatic fever and in rheumatic heart disease.

Dosage

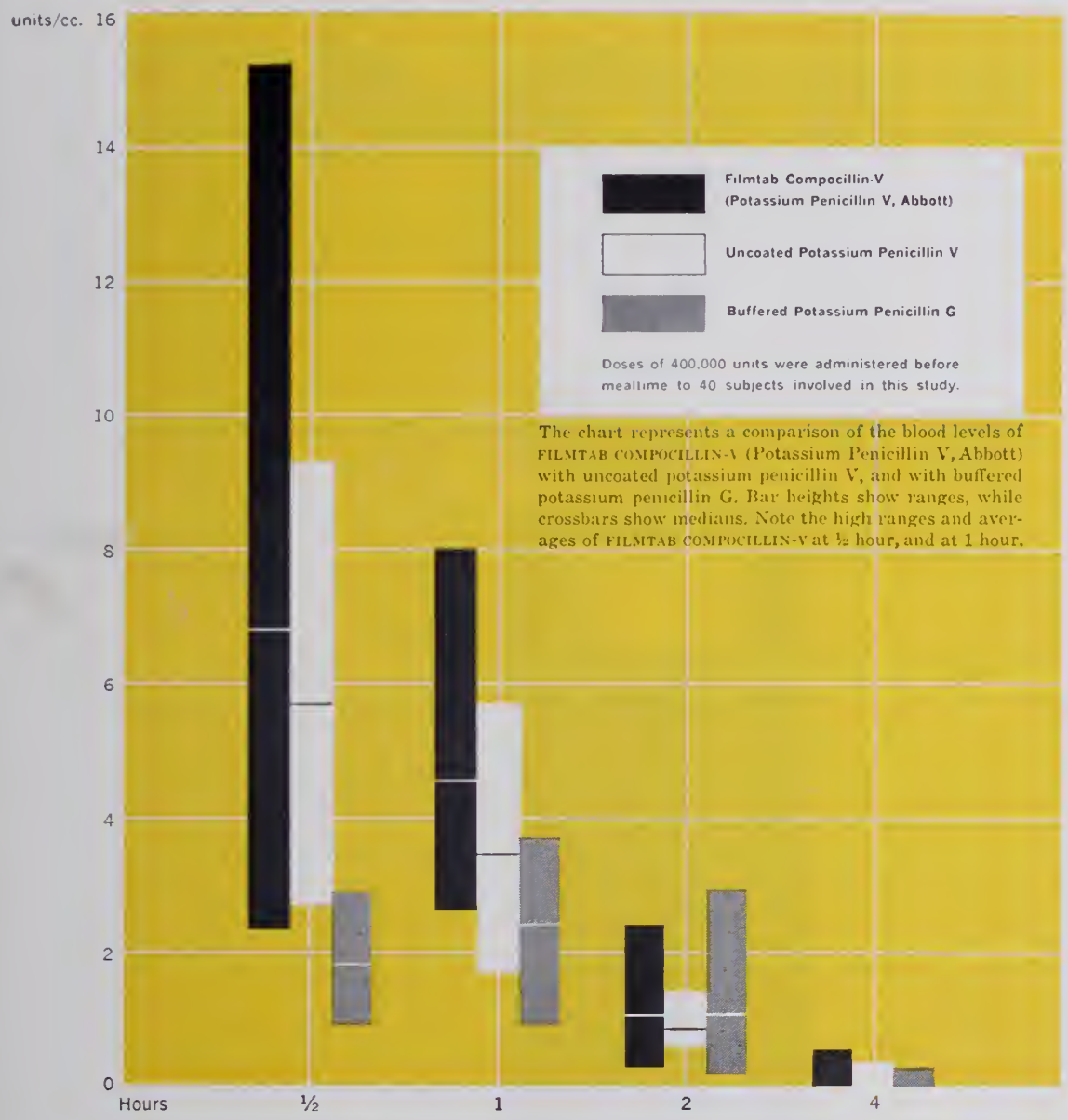
Depending on the severity of the infection, 125 to 250 mg. (200,000 to 400,000 units) every four to six hours. For children, dosage is determined by age and weight.

Supplied

Filmtabs COMPOCILLIN-V (Potassium Penicillin V, Abbott) come in 125 mg. (200,000 units), bottles of 50; and in 250 mg. (400,000 units), bottles of 25. Oral Suspension COMPOCILLIN-V (Hydrabamine Penicillin V, Abbott), contains 180 mg. per 5-cc. teaspoonful, in 40-cc. and 80-cc. bottles.

802071

THE HIGHER BLOOD LEVELS OF COMPOCILLIN-V
—IN EASY-TO-SWALLOW FILMTABS AND TASTY, ORAL SUSPENSION



Now, with *Filmtab* COMPOCILLIN-V, patients get (and within minutes) fast, high penicillin concentrations. Note the blood level chart.

COMPOCILLIN-V is indicated whenever penicillin therapy is desired. It comes in two highly-acceptable forms. *Filmtab* COMPOCILLIN-V offers two therapeutic dosages (125 and 250 mg.). Patients find *Filmtabs* tasteless, odorless and easy-to-swallow. For children, COMPOCILLIN-V comes in a tasty, banana-flavored suspension. It's ready-mixed – stays stable for at least 18 months.

Abbott

Spontin®

(Ristocetin, Abbott)

and when coccal infections hospitalize the patient



802070

Indications

SPONTIN is indicated for treating gram-positive bacterial infections. Clinical reports have indicated its effectiveness against a wide range of staphylococcal, streptococcal and pneumococcal infections. It can be considered a drug of choice for the immediate treatment of serious infections caused by organisms resistant to other antibiotics.

Dosage

Recommended dosage depends on the sensitivity of the microorganism and on the severity of the disease under treatment. For pneumococcal and streptococcal infections, a dosage of 25 mg./Kg. per day will usually be adequate. Majority of staphylococcal infections will be controlled by 25 to 50 mg./Kg. per day. However, in endocarditis due to relatively resistant strains or where vegetations or abscesses occur, dosages as high as 75 mg./Kg. per day may be used. It is recommended that the daily dosages be divided into two or three equal parts at eight- or twelve-hour intervals.

Supplied

SPONTIN is supplied as a sterile, lyophilized powder, in vials representing 500 mg. of ristocetin activity.

A LIFESAVING ANTIBIOTIC AFTER OTHER ANTIBIOTICS HAD FAILED



SPONTIN comes to the medical profession with a clinical history of dramatic results — cases where the patients were given little chance of survival.

During these careful, clinical investigations, lives were saved after weeks (and sometimes months) of antibiotic failures. These were the cases where the infecting organisms had become resistant to present-day therapy. And, just as important, were the good results found against a wide range of gram-positive coccal infections.

Essentially, SPONTIN is a drug for hospital use, for patients with potentially dangerous infections. In its present form, SPONTIN is administered intravenously using the drip technique. Dosage may be dissolved in 5% dextrose in water or in any isotonic or hypotonic saline solution. Some of the important therapeutic points of SPONTIN include:

1. successful short-term therapy for acute or subacute endocarditis
2. new antimicrobial activity — no natural resistance to SPONTIN was found in tests involving hundreds of coccal strains
3. antimicrobial action against which resistance is rare — and extremely difficult to induce
4. bactericidal action at effective therapeutic dosages.

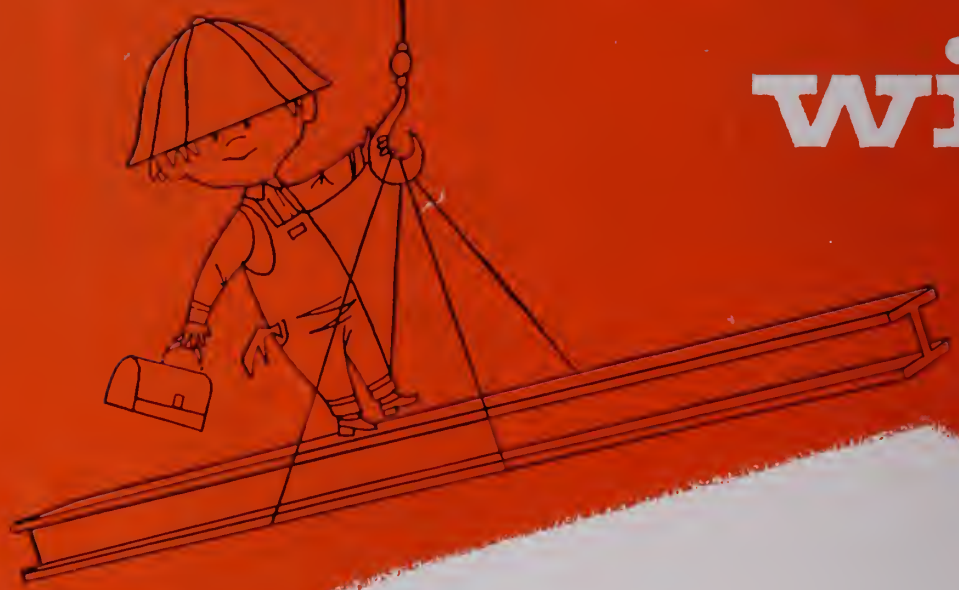
SPONTIN is truly a lifesaving antibiotic. It could save the life of one of your patients — does your hospital have it stocked?

Abbott

new

INCR

with



CORRECTS IRON DEFICIENCY AS IT STIMULATES APPETITE

- Offers appetite stimulating Vitamins B_1, B_6, B_{12} and protei upgrading l-Lysine, fortified with a readily absorbed, we tolerated form of iron.
- Delicious cherry base designed to appeal to all patients.

PARTICULARLY FOR CHILDREN

Helps young appetites keep pace with the increased nutritio demands of childhood while supplying adequate amounts essential iron.

*CEMIN IRON

LYSINE·VITAMINS

SYRUP

rovides the following percentages of Minimum Daily Requirements per teaspoonful:

	Child under 6	Child over 6	Adult
B_1	2000%	1333%	1000%
Iron	400%	300%	300%



ORMULA

ACH TEASPOONFUL (5 cc.) CONTAINS

Lysine HCl	300 mg.
erric Pyrophosphate (Soluble)	250 mg.
ron (as Ferric Pyrophosphate)	30 mg.
itamin B_{12} Crystalline	25 mcgm.
hiamine Mononitrate (B_1)	10 mg.
yridoxine HCl (B_6)	5 mg.
lcohol	0.75%

verage dosage is one teaspoonful daily. Available in bottles of 4 fl. oz.

*REG. U. S. PAT. OFF.

EDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK Lederle

NEW "Single-Rx

for



- Symptomatic relief of aches, pains, fever, coryza, and rhinorrhea associated with upper respiratory tract infections.
- Prevention of secondary pyogenic infections due to tetracycline-sensitive organisms — which often follow viral infections of the upper respiratory tract.

Bristol LABORATORIES INC. · SYRACUSE, NEW YORK

EDICATION

lu," "grippe," "virus" and the common cold

Tetrex®-APC

with BRISTAMIN®

TETRACYCLINE PHOSPHATE COMPLEX WITH PHENYLTOLOXAMINE AND APC

Each TETREX-APC WITH BRISTAMIN Capsule contains:

A broad-spectrum antibiotic

TETREX (tetracycline phosphate complex) ..... 125 mg.
(tetracycline HCl activity)

An established analgesic-antipyretic combination

Aspirin ..... 150 mg.
Phenacetin ..... 120 mg.
Caffeine ..... 30 mg.

A dependable antihistamine

BRISTAMIN (phenyltoloxamine, Bristol) ..... 25 mg.

Dosage: *Adults:* 2 capsules at onset of symptoms, followed by 2 capsules 3 or 4 times a day for 3 to 5 days. *Children, 6 to 12 yrs.:* One-half adult dose.

Supplied: Bottles of 24 and 100 capsules.

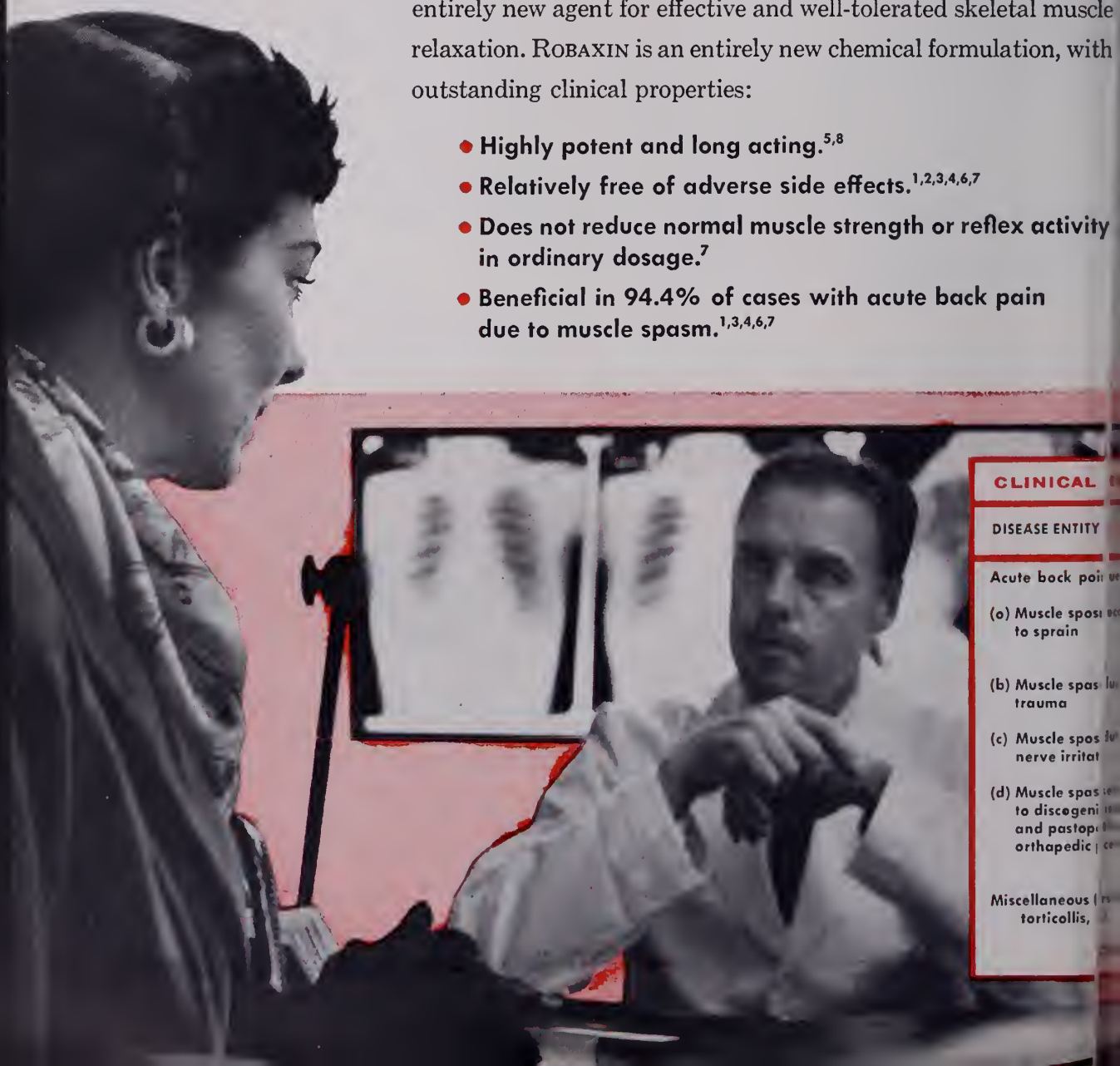
Significant Robins research discovery:

A NEW SKELETAL MUSCLE RELAXANT

Ro

ROBAXIN – synthesized in the Robins Research Laboratories, and intensively studied for five years – introduces to the physician an entirely new agent for effective and well-tolerated skeletal muscle relaxation. ROBAXIN is an entirely new chemical formulation, with outstanding clinical properties:

- **Highly potent and long acting.**[5,8]
- **Relatively free of adverse side effects.**[1,2,3,4,6,7]
- **Does not reduce normal muscle strength or reflex activity in ordinary dosage.**[7]
- **Beneficial in 94.4% of cases with acute back pain due to muscle spasm.**[1,3,4,6,7]





Robaxin®

(Methocarbamol Robins, U.S. Pat. No. 2770649)

Highly specific action

ROBAXIN is highly specific in its action on the internuncial neurons of the spinal cord – with inherently sustained repression of multisynaptic reflexes, but with no demonstrable effect on monosynaptic reflexes. It thus is useful in the control of skeletal muscle spasm, tremor and other manifestations of hyperactivity, as well as the pain incident to spasm, without impairing strength or normal neuromuscular function.

Beneficial in 94.4% of cases tested

When tested in 72 patients with acute back pain involving muscle spasm, ROBAXIN induced marked relief in 59, moderate relief in 6, and slight relief in 3 – or an over-all beneficial effect in 94.4%.[1,3,4,6,7] No side effects occurred in 64 of the patients, and only slight side effects in 8. In studies of 129 patients, moderate or negligible side effects occurred in only 6.2%.[1,2,3,4,6,7]

H ROBAXIN IN ACUTE BACK PAIN[1,3,4,6,7]

DURATION OF TREATMENT	DOSE PER DAY (divided)	RESPONSE marked	mod.	slight	neg.	SIDE EFFECTS
2-42 days	3-6 Gm.	17	1	0	0	None, 16 Dizziness, 1 Slight nausea, 1
1-42 days	2-6 Gm.	8	1	3	1	None, 12 Nervousness, 1
4-240 days	2.25-6 Gm.	4	1	0	0	None, 5
2-28 days	1.5-9 Gm.	24	3	0	3	None, 25 Dizziness, 1 Lightheadedness, 2 Nausea, 2 *
3-60 days	4-8 Gm.	6	0	0	0	None, 6
		59	6	3	4	*Relieved on reduction of dose

References: 1. Carpenter, E. B.: Publication pending. 2. Carter, C. H.: Personal communication. 3. Forsyth, H. F.: Publication pending. 4. Freund, J.: Personal communication. 5. Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: American Pharm. Assn. 46:374, 1957. 6. Nachman, H. M.: Personal communication. 7. O'Doherty, D.: Publication pending. 8. Truitt, E. B., Jr., and

Indications – Acute back pain associated with: (a) muscle spasm secondary to sprain; (b) muscle spasm due to trauma; (c) muscle spasm due to nerve irritation; (d) muscle spasm secondary to discogenic disease and postoperative orthopedic procedures; and miscellaneous conditions, such as bursitis, fibrositis, torticollis, etc.

Dosage – Adults: Two tablets 4 times daily to 3 tablets every 4 hours. Total daily dosage: 4 to 9 Gm. in divided doses.

Precautions – There are no specific contraindications to Robaxin and untoward reactions are not to be anticipated. Minor side effects such as lightheadedness, dizziness, nausea may occur rarely in patients with unusual sensitivity to drugs, but disappear on reduction of dosage. When therapy is prolonged routine white blood cell counts should be made since some decrease was noted in 3 patients out of a group of 72 who had received the drug for periods of 30 days or longer.

Supply – Robaxin Tablets, 0.5 Gm., in bottles of 50.

A. H. ROBINS CO., INC., Richmond 20, Va.

RELIEF 1 2





FROM INFECTION*

FROM IRRITATION

*as adjunctive therapy only

THE FIRST TROCHE TO PROVIDE THREEFOLD BENEFITS

PENTAZETS

TROCHES

NON-NARCOTIC ANTITUSSIVE EFFICACY SHOWN TO APPROXIMATE THAT OF CODEINE



NOW COUGH CONTROL TOO

With the addition of a non-narcotic antitussive to troche medication, 'PENTAZETS' provides a new and extended therapeutic advantage in this convenient form of treatment.

Treatment of the cough too, so often a troublesome symptom of sore throat, combined with wide-range antibiotic activity and soothing analgesic benefit, now offers *three*fold relief in a variety of throat irritations.

And 'PENTAZETS' are pleasant-tasting, too, making them highly acceptable, especially to children.

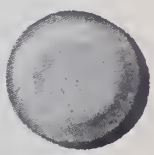
'PENTAZETS' contains:

• *Homarylamine*—a new non-narcotic antitussive with cough control shown to approximate that of codeine. • *Bacitracin-Tyrothricin-Neomycin*—a combined antibiotic treatment against many pathogenic organisms with little danger of unfavorable side effects. • *Benzocaine*—a local anesthetic for soothing relief to inflamed tissues. Being slowly absorbed, it is especially beneficial for prolonged effect and benefit to surrounding areas.

Supplied: Vials of 12.

Each 'PENTAZETS' troche contains:

Homarylamine hydrochloride	20 mg.
Zinc Bacitracin	50 units
Tyrothricin	1 mg.
Neomycin sulfate	5 mg.
(equivalent to 3.5 mg. neomycin base)	
Benzocaine	5 mg.



MSD

MERCK SHARP & DOHME

DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

for "This Wormy World"



Pleasant tasting

'ANTEPAR'® brand

PIPERAZINE

SYRUP · TABLETS · WAFERS

Eliminate **PINWORMS IN ONE WEEK**
ROUNDWORMS IN ONE OR TWO DAYS

PALATABLE • DEPENDABLE • ECONOMICAL

'ANTEPAR' SYRUP – Piperazine Citrate, 100 mg. per cc.
'ANTEPAR' TABLETS – Piperazine Citrate, 250 or 500 mg., scored
NEW 'ANTEPAR' WAFERS – Piperazine Phosphate, 500 mg.

Literature available on request

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N. Y.



To cut daytime lethargy

(and keep rauwolfia potency)

in treatment of hypertension:

Mounting clinical evidence confirms the view that HARMONYL produces much less lethargy while reducing blood pressure effectively. In the most recent study[1], HARMONYL was evaluated in comparison with reserpine and other rauwolfia alkaloids. HARMONYL *was the only alkaloid which produced a hypotensive response closely matching that of reserpine, coupled with a greatly reduced rate of lethargy.* Only one HARMONYL patient in 20 showed lethargy, while an average of 11 out of 20 showed lethargy with reserpine, and 10 out of 20 with the alseroxylon fraction. Abbott

802077

for your hypertensives who must stay on the job

Harmonyl*

(DESERPIDINE, ABBOTT)

while the drug works effectively . . . so does the patient

1. Comparative Effects of Various Rauwolfia Alkaloids in Hypertension; *Diseases of the Chest*; in press.

*TRADEMARK



in anxiety and hypertension

NEW *fast-acting*

filmtab®

Harmonyl-N*

(Harmonyl* and Nembutal®)

Calmer days, more restful nights starting *first* day of treatment, through synergistic action of HARMONYL (Deserpidine, Abbott) and NEMBUTAL (Pentobarbital, Abbott). Lower therapeutic doses, lower incidence of side effects. Each HARMONYL-N Filmtab contains 30 mg. NEMBUTAL Calcium and 0.25 mg. HARMONYL. Each HARMONYL-N *Half-Strength* Filmtab combines 15 mg. NEMBUTAL Calcium and 0.1 mg. HARMONYL. Abbott

®Filmtab—Film-seated tablets, Abbott; pat. applied for

801060 *Trademark

Digitalis

in its completeness



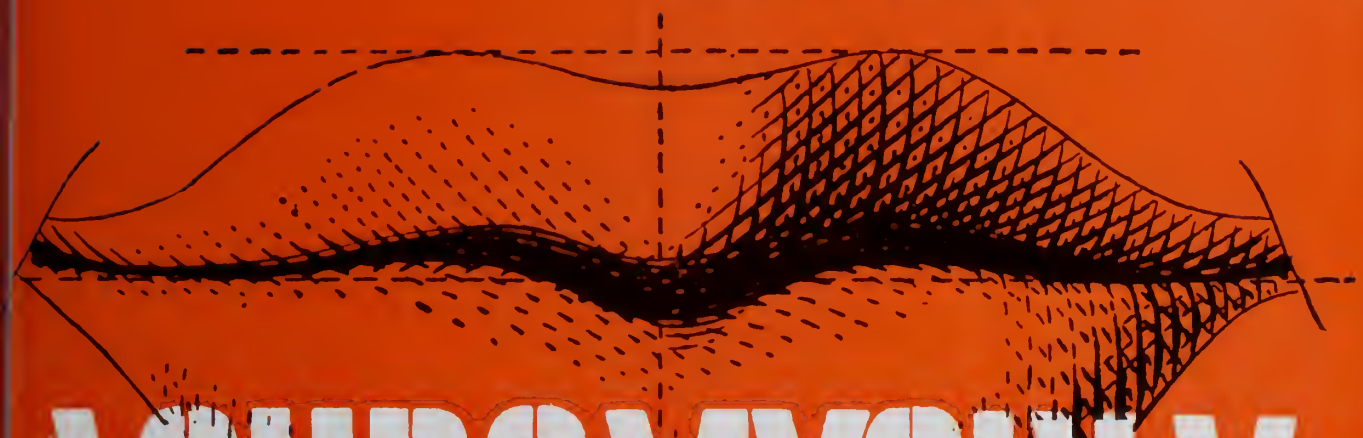
Each pill is equivalent to one USP Digitalis Unit

Physiologically Standardized therefore always dependable.

Clinical samples sent to physicians upon request.

Davies, Rose & Co., Ltd.
Boston, 18, Mass.

TASTY, FAST-ACTING ORAL FORM OF CITRATE-BUFFERED ACHROMYCIN V



ACHROMYCIN* V

TETRACYCLINE BUFFERED WITH SODIUM CITRATE

SYRUP

aqueous

ready-to-use

freely miscible

- accelerated absorption in the gastro-intestinal tract
- early, high peaks of concentration in body tissue and fluid
- quick control of a wide variety of infections
- unsurpassed, true broad-spectrum action
- minimal side effects
- well-tolerated by patients of all ages

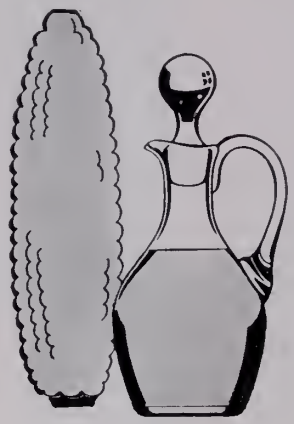
ACHROMYCIN V SYRUP:
Orange Flavor. Each teaspoonful (5 cc.) contains 125 mg. of tetracycline, HCl equivalent, citrate-buffered. Bottles of 2 and 16 fl. oz.

DOSAGE:
6-7 mg. per lb. of body weight per day.

*Reg. U. S. Pat. Off.

Lederle

LEDERLE LABORATORIES DIVISION
AMERICAN CYANAMID COMPANY
PEARL RIVER, NEW YORK



How to provide unsaturated fatty acids without dieting

With type as well as amount of fat in the human diet now assuming such importance, the new role of corn oil as a source of unsaturated fatty acids has prompted these questions:

1 **What is the role of unsaturated fats in the daily diet?**

answer: There is now ample clinical evidence that unsaturated fats tend to lower the serum cholesterol level of human subjects, whereas saturated fats have the opposite effect.

2 **How much of the important unsaturated fatty acids does corn oil provide?**

answer: MAZOLA Corn Oil yields an average of 85 per cent unsaturated fatty acids. 100 grams of MAZOLA will yield: 53 grams of linoleic acid and 28 grams of oleic acid; it also provides 1.5 grams of sitosterols, and only 12 grams of saturated fatty acids.

3 **What is the best way to provide unsaturated fatty acids?**

answer: By balancing the types of fat in the daily diet. Many doctors now agree that from one third to one half of the total fat intake should be in the form of a vegetable oil such as corn oil (MAZOLA).

4 **How is corn oil most easily taken in the usual daily diet?**

answer: There is no need to disturb the daily routine of meals or to have separate diets for individual members of the family. MAZOLA Corn Oil can be used instead of solid fats in preparing and cooking foods, it is also ideal for salad dressings.

5 **How can I obtain further information on the value of corn oil as a source of unsaturated fatty acids?**

answer: The subject is reviewed in the book "Vegetable Oils in Nutrition." Also available is a recipe book for distribution to your patients. It tells how to use corn oil in everyday meals. Both books will be sent free of charge to physicians, on request.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York 4, N.Y.





TAKE A NEW LOOK AT ALLERGENS*
TAKE A LOOK AT NEW DĪMETANE

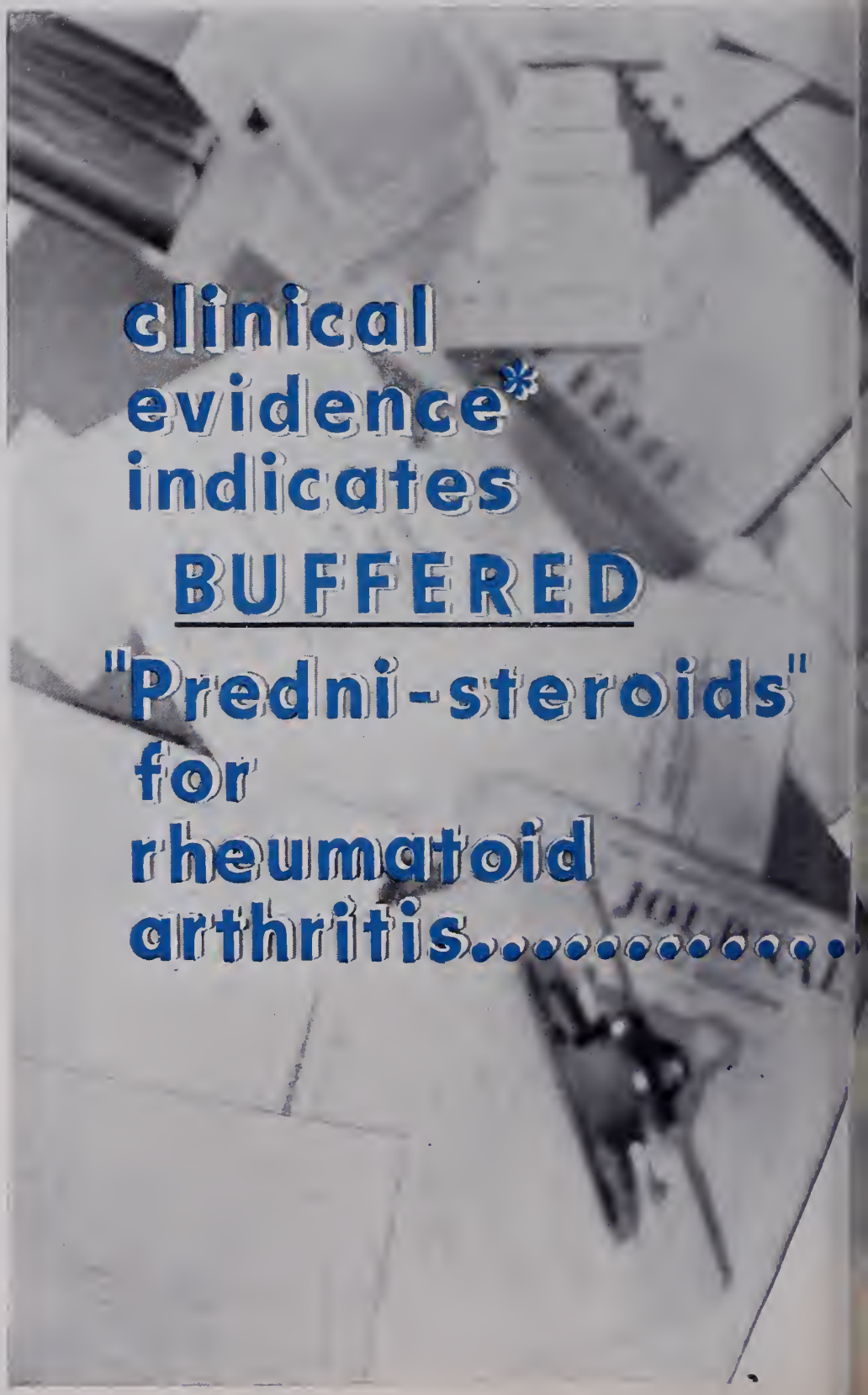
There is no antihistamine better than DIMETANE for allergic protection. DIMETANE gives you good reasons to re-examine the antihistamine you are now using: unexcelled potency, unsurpassed therapeutic index and relative safety...minimum drowsiness or other side effects. Has been effective where other antihistamines have failed. DIMETANE Extentabs® (12 mg.) protect for 10-12 hours on one tablet. Also available: Tablets (4 mg.), Elixir (2 mg. per 5 cc.).

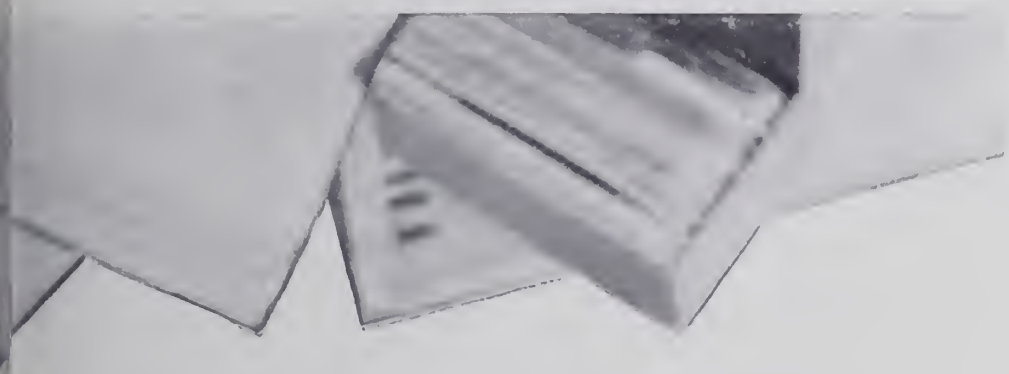
A. H. ROBINS CO., INC., Richmond 20, Virginia
Ethical Pharmaceuticals of Merit Since 1878

*Typical Allergens: Animal Hair and Dander • Pollen • Molds • Bacteria and Viruses • Feathers • Insect Scales • Vegetable Fibers and Seeds Plant Juices • House Dust • Drugs and Chemicals • Minerals and Metals.

Robins

(PARABROMDYLAMINE MALEATE)
Dīmetane®


clinical
evidence*
indicates
BUFFERED
"Predni-steroids"
for
rheumatoid
arthritis.....



Gastric distress accompanying "predni-steroid" therapy is a definite clinical problem — well documented in a growing body of literature.

view of the beneficial re-
s observed when antacids
nd diets were used concom-
ith prednisone and predni-
we feel that these measures
be employed prophylacti-
offset any gastrointestinal
ects."—Dordick, J. R. *et al.*:
tate J. Med. 57:2049 (June
57.

*"It is our growing conviction that all patients receiving oral steroids should take each dose after food or with adequate buffering with aluminum or magnesium hydroxide preparations."—Sigler, J. W. and Ensign, D. C.: J. Kentucky State M. A. 54:771 (Sept.) 1956.

*"The apparent high incidence of this serious [gastric] side effect in patients receiving prednisone or prednisolone suggests the advisability of routine co-administration of an aluminum hydroxide gel."—Bollet, A. J. and Bunim, J. J.: J. A. M. A. 158:139 (June 11) 1955.

One way to make sure that patients receive full benefits of "predni-steroid" therapy plus positive protection against gastric distress is by prescribing CO-DELTRA or CO-HYDELTRA.

o-Deltra®

PREDNISONE BUFFERED

iple compressed tablets

provide all the benefits of "Predni-steroid" therapy— plus positive antacid protection against gastric distress

o-Hydeltra®

PREDNISOLONE BUFFERED



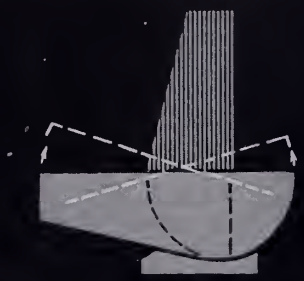
2.5 mg. or 5.0 mg. of prednisone or prednisolone, plus 300 mg. of dried aluminum hydroxide gel and 50 mg. magnesium trisilicate, in bottles of 30, 100, 500.

MERCK SHARP & DOHME Division of MERCK & CO., INC., Philadelphia 1, Pa. MSD

probably the easiest-to-use x-ray table in its field



Instont swing-through from fluoroscopy to rodiography (ond vice verso). Self-guiding to correct operating distance. Nothing to motch up . . . you do it without leaving the table front.



Horizontol, vertical, intermediote, or Trendelenburg positions by equipoise hondrock (or quiet motor-drive).



Choice of rototing or stotionory onode x-roy tubes. Full powered 100 mo ot 100 KVP.

certainly the simplest automatic x-ray control ever devised

CHEST		SPINE					PELVIS FEMUR		HEAD			EXTREMITIES		SHOULDER RIBS		GALL BLDR. G.U. TRACT	Gastro-Intestinal			Optional	FLUOR and SPOT FILM
CHEST HEART PA/Obl	CHEST HEART Lateral	CERVICAL Lateral	DORSAL Lateral STERNUM PA	LUMBAR Lateral SACRUM Lateral	CERVICAL AP	DORSAL AP LUMBAR AP	PELVIS AP	FETUS AP/Lat	SKULL Any Position	SINUSES Any Position	MANDIBLE MAXILLA MASTOID AP/Lat	EXTREMITY Any Position no screen	SHOULDER SCAPULA KNEE AP/PA	RIBS Above Diaphragm AP/PA	RIBS Below Diaphragm AP/PA	GALL BLDR. G.U. TRACT AP/PA	ESOPHAGUS PA	STOMACH PA	COLON PA		
72	72	72	37	37	37	37	37	37	37	30	30	37	37	37	37	37	37	37	37		

know why? *look . . .*

1. On this board you select the bodypart you want to x-ray
2. Set its measured thickness
3. Press the exposure button

That's all there is to it. No time, KV, or MA adjusting to do. No charts to check, no calculations to make.



housed in this handsome upright cabinet

obviously as canny an x-ray investment as you can make

Modest cost
Excellent value
Prestige "look"
Top Reputation (significantly, "Century" trade-in value has long been highest in its field)

And you can rent if you prefer.

Call in your Picker representative (he's probably in your local 'phone book) or write: PICKER X-RAY CORPORATION 25 South Broadway, White Plains, N. Y.

anatomatic Century diagnostic x-ray unit

Picker



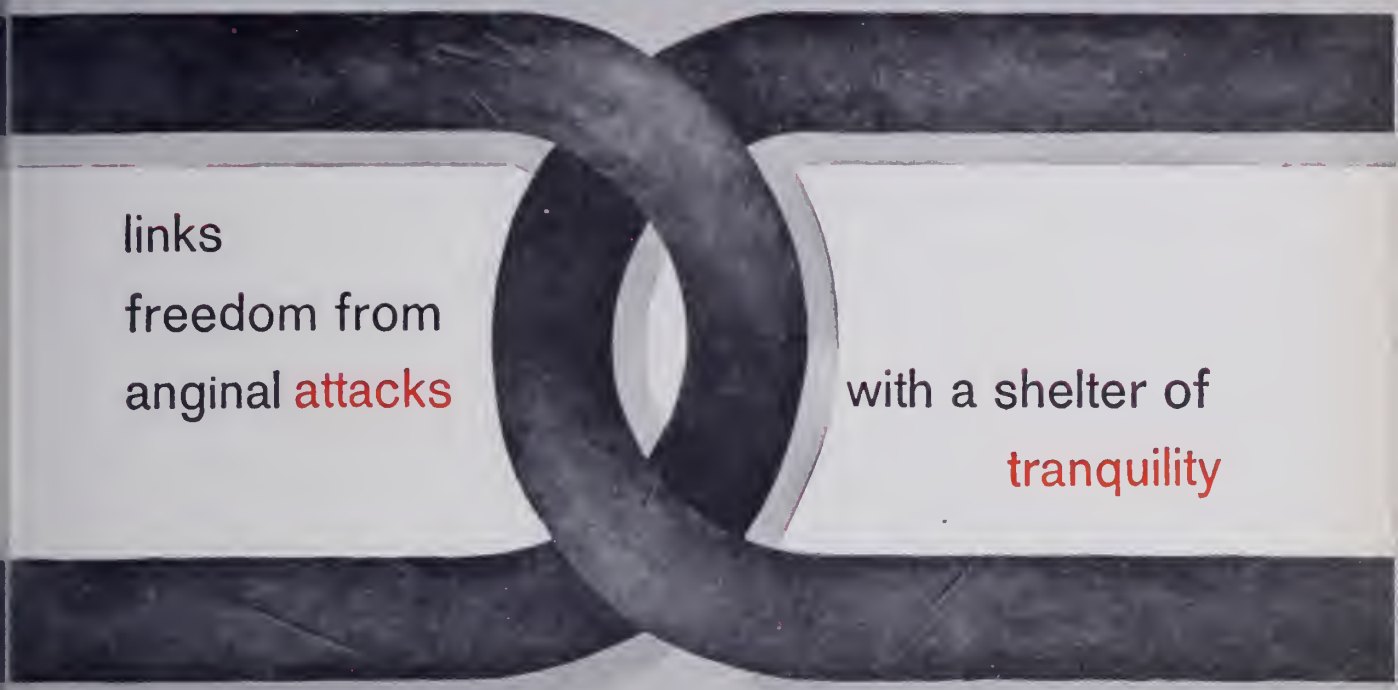
Picker office for **LOUISIANA** and Mississippi is 1220 St. Charles Avenue, New Orleans 13, La.
Alexandria, La., 3020 Dennis Street
Jackson, Miss., 2364 Payden Street

new for angina

PETN + ATARAX®

(PENTAERYTHRITOL TETRANITRATE) (HYDROXYZINE)

CARTRAX*



In pain. Anxious. Fearful. On the road to cardiac invalidism. These are the pathways of angina patients. For fear and pain are inexorably linked in the angina syndrome.

For angina patients—perhaps the next one who enters your office—won't you consider new CARTRAX? This doubly effective therapy combines PETN (pentaerythritol tetranitrate) for lasting vasodilation and ATARAX for peace of mind. Thus CARTRAX relieves not only the anginal pain but reduces the concomitant anxiety.

Dosage and supplied: begin with 1 to 2 yellow CARTRAX "10" tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. When indicated, this may be increased for more optimal effect by switching to pink CARTRAX "20" tablets (20 mg. PETN plus 10 mg. ATARAX.) For convenience, write "CARTRAX 10" or "CARTRAX 20." In bottles of 100. CARTRAX should be taken 30 to 60 minutes *before* meals, on a continuous dosage schedule. Use PETN preparations with caution in glaucoma.

"Cardiac patients who show significant manifestations of anxiety should receive ataractic treatment as part of the therapeutic approach to the cardiac problem."[1]

1. Waldman, S., and Pelner, L.: Am. Pract. & Digest Treat. *8*:1075 (July) 1957.

*TRADEMARK

ROERIG Rx

New York 17, New York
Division, Chas. Pfizer & Co., Inc.

Therapeutic Nutrition in Chronic Disease

Meat...

and Protein Nutrition in Vascular Disease

Whether the eventual solution of the problem of atherogenesis will come out of the field of dietetics, biophysics, or pharmacology, one fact remains undeniable:

Adequate protein nutrition is considered of importance for the age group most commonly affected by disease of the vascular system, so that the demands of good nutritional health might be met.

Meat is outstanding among protein foods. It supplies all the essential amino acids, and closely approaches the quantitative proportions needed for biosynthesis of human tissue.

In addition, it is an excellent source of B vitamins, including B_6 and B_{12}, as well as iron, phosphorus, potassium, and magnesium.

When curtailment of fat intake is deemed indicated, meat need not always be denied the patient. Visible fat obviously should not be eaten. But the contained percentage of invisible (interstitial) fat is well within the limits of reasonable fat allowance.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago...Members Throughout the United States

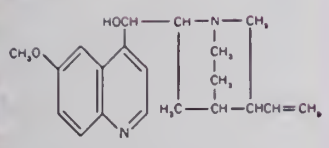
Progress in SYNTHETIC CHEMISTRY
EQUALS
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"It has a high degree of clinical safety. . . It is considered to be the preferred antimalarial drug for treatment of disorders of connective tissue, because of the low incidence of gastrointestinal distress as compared to that with chloroquine phosphate."[1]

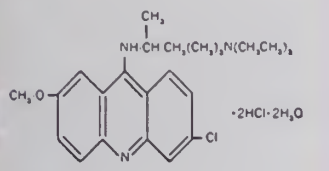
"... Plaquenil is decidedly less toxic and better tolerated by the average patient, even in high dosage, than is chloroquine."[2]

"... the least toxic of its class ..."[3]

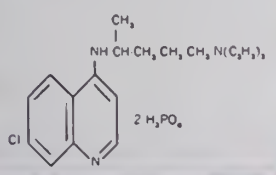
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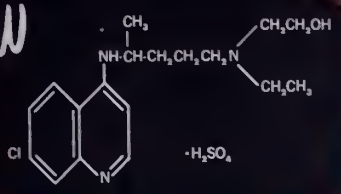
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Remarkably effective in RHEUMATOID ARTHRITIS

SIDE EFFECTS MARKEDLY REDUCED

DOSE **Initial** – 400 to 600 mg. (2 or 3 tablets) Plaquenil sulfate daily.
Maintenance – 200 to 400 mg. (1 or 2 tablets) daily.

SUPPLIED Tablets of 200 mg., bottles of 100.

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NEW YORK 18 N Y

... L. and Harrison J. W. *Cleveland Clin. Quart.* 24: 98, Apr., 1957.
... *Investigations*, The Shock Section 5: 25, Nov., 1956.
... Disease, Ann. Rheumat. Dis. 15: 72, June 1956.

Atabrine (brand of quinacrine), Aralen (brand of chloroquine), and Plaquenil (brand of hydroxychloroquine), trademarks reg. U.S. Pat. Off.



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The Flavor Remains Stable down to the last tablet.

25¢ Bottle of 48 tablets (1¼ grs. each).

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A versatile, well-balanced formula offering in one tablet the drugs often prescribed separately for treating upper respiratory infections.

Traditional and nonspecific nasopharyngeal symptoms of malaise and chilly sensations are rapidly relieved, and headache, muscular pain, and pharyngeal and nasal discharges are reduced or eliminated.

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Available on prescription only.

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Each tablet contains:

ACHROMYCIN® Tetracycline	125 mg.
Phenacetin	120 mg.
Caffeine	30 mg.
Salicylamide	150 mg.
Chlorothen Citrate	25 mg.

Bottles of 24 and 100

SYRUP *(Lemon-lime flavored)*
Each teaspoonful (5 cc.) contains:

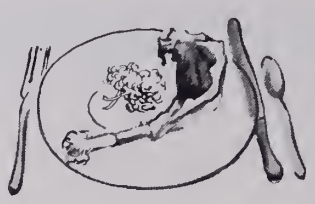
ACHROMYCIN® Tetracycline equivalent to tetracycline HCl	125 mg.
Phenacetin	120 mg.
Salicylamide	150 mg.
Ascorbic Acid (C)	25 mg.
Pyrilamine Maleate	15 mg.
Methylparaben	4 mg.
Propylparaben	1 mg.

Bottle of 4 oz.

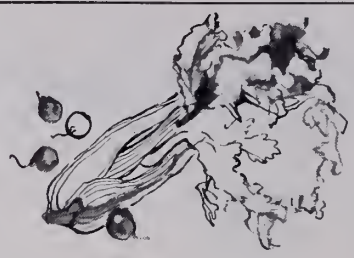


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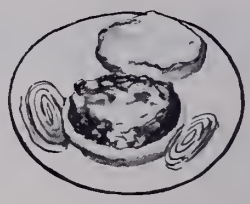
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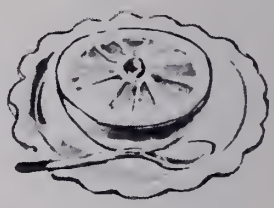
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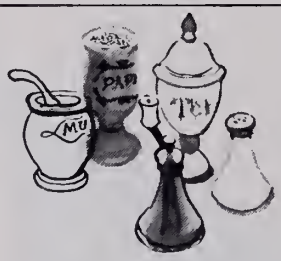
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The Low Calorie Diet

A diet that calls for lamb chops when they aren't on the restaurant menu is an invitation to "slip off." But a diet outline that lets your patient fill in the details provides incentive to stick to his diet.

He must remember that a candy bar equals a hamburger in calories only. An alternative must be equivalent in nutrition, too.

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Have your patient keep a calorie count. Then with a glass of beer* to brighten meals, he is more likely to follow a balanced diet later.

*104 Calories/8 oz. glass (Average of American Beers)

United States Brewers Foundation
Beer—America's Beverage of Moderation

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* J.A.M.A. *166*:158,1958; Welsh, A.L. and Ede, M. *"...prompt remissions of...acute phases."* with TARCORTIN

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* 1. Clyman, S. G.: Postgrad. Med. *21*:309, 1957.
2. Bleiberg, J.: J. M. Soc. New Jersey *53*:37, 1956.
3. Abrams, B. P., and Shaw, C.: Clin. Med. *3*:839, 1956.
4. Welsh, A. L., and Ede, M.: Ohio State M. J. *50*:837, 1954.
5. Bleiberg, J.: Am. Practitioner *8*:1404, 1957.



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salicylate benefits with minimal salicylate drawbacks

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Reference: 1. J.A.M.A. 158:386 (June 4) 1955.

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1. Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.

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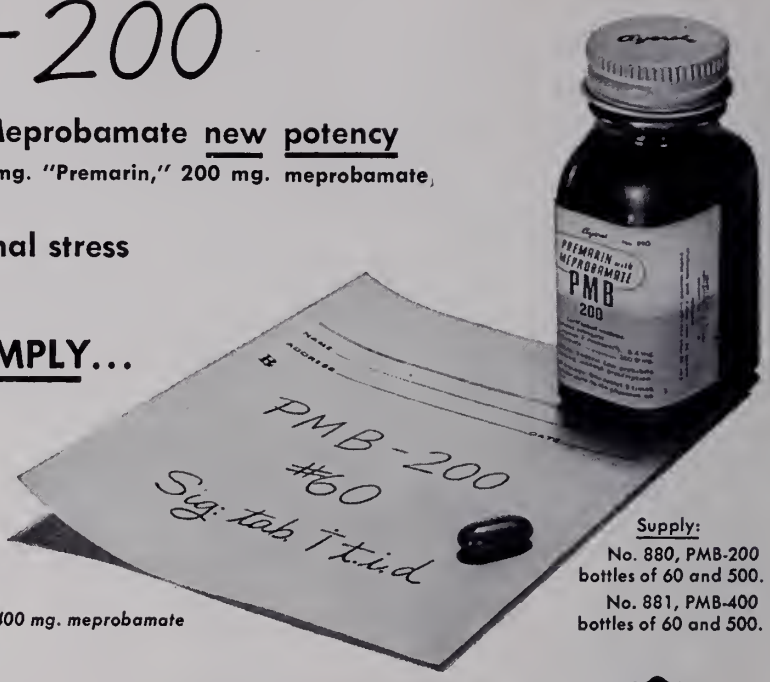
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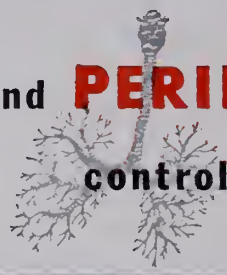
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In your patients, **SUMYCIN** *produces:*

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MAY 5-6-7

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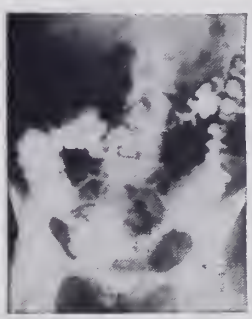
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in spastic and irritable colon



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* 1. Clyman, S. G.: Postgrad. Med. *21*:309, 1957.
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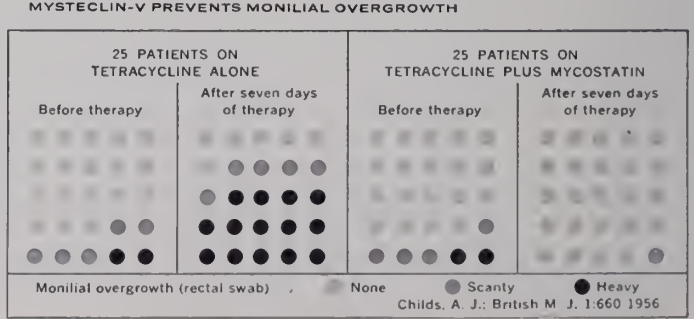
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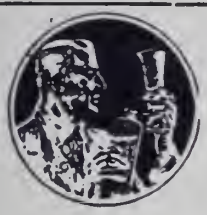
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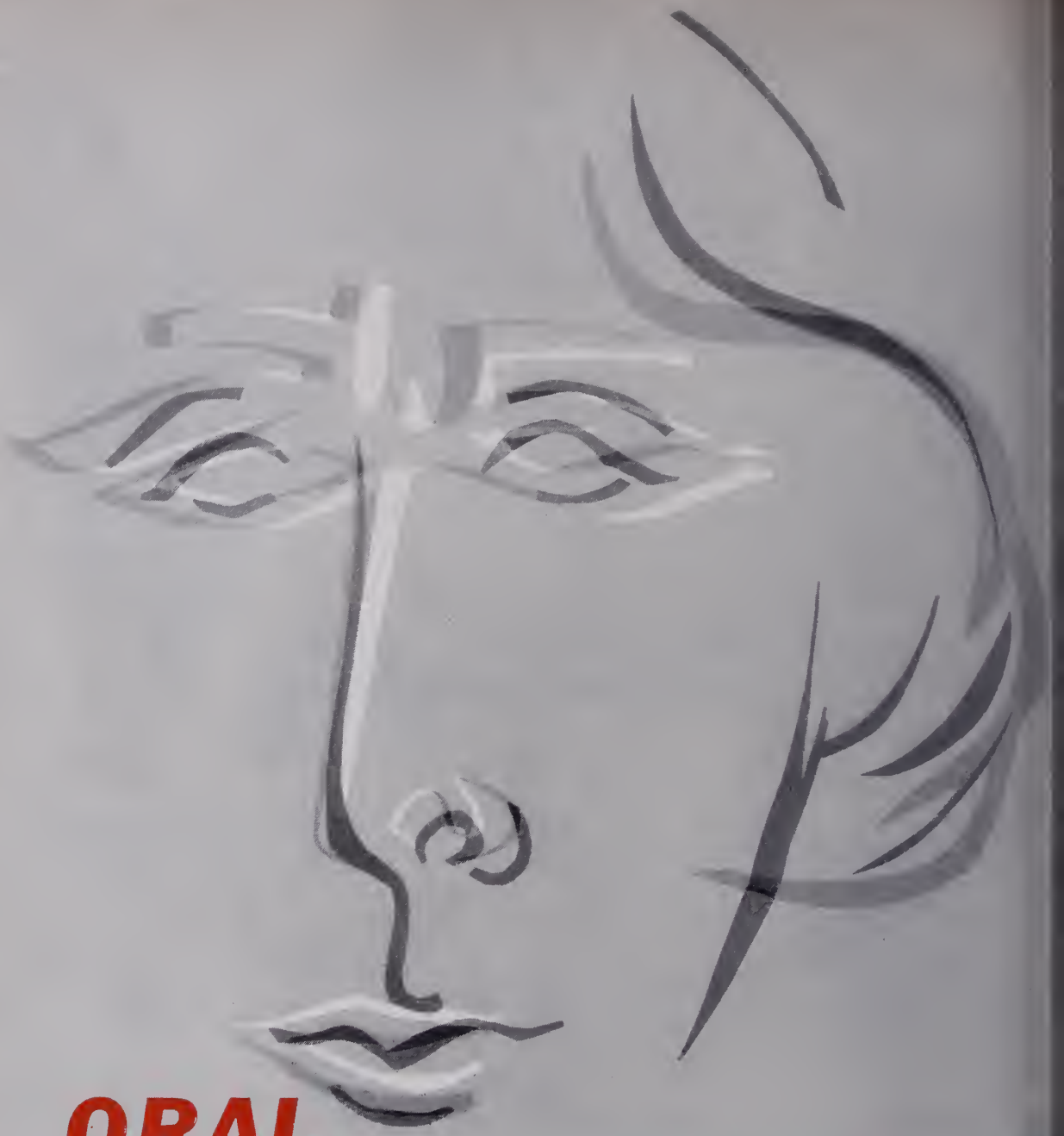
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References: (1) Greenblatt, R. B., & Clark, S. L.: M. Clin. North America, Philadelphia, W. B. Saunders Company (Mar.) 1957, p. 587. (2) Greenblatt, R. B.: *J. Clin. Endocrinol.* *16*:869, 1956. (3) Hertz, R.; Waite, J. H., & Thomas, L. B.: *Proc. Soc. Exper. Biol. & Med.* *91*:418, 1956.

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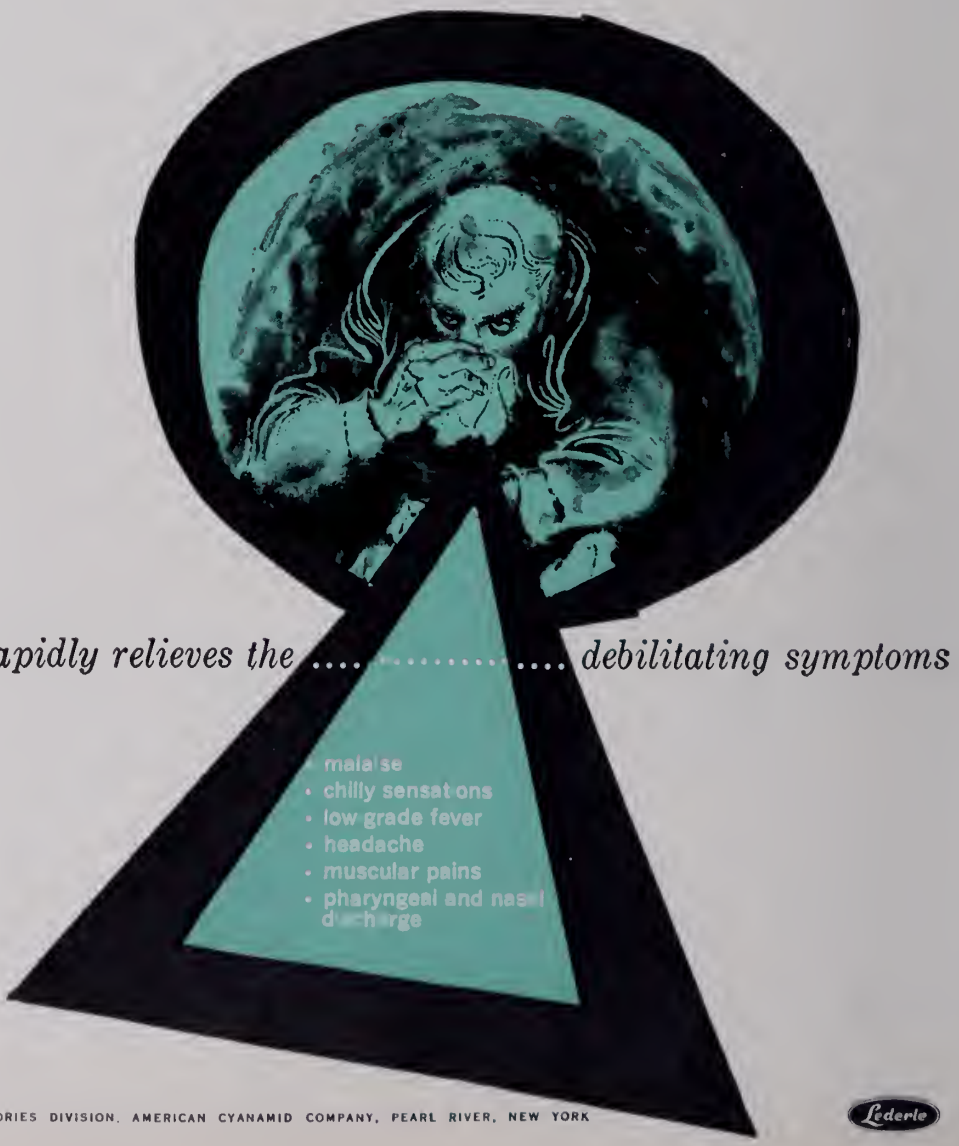
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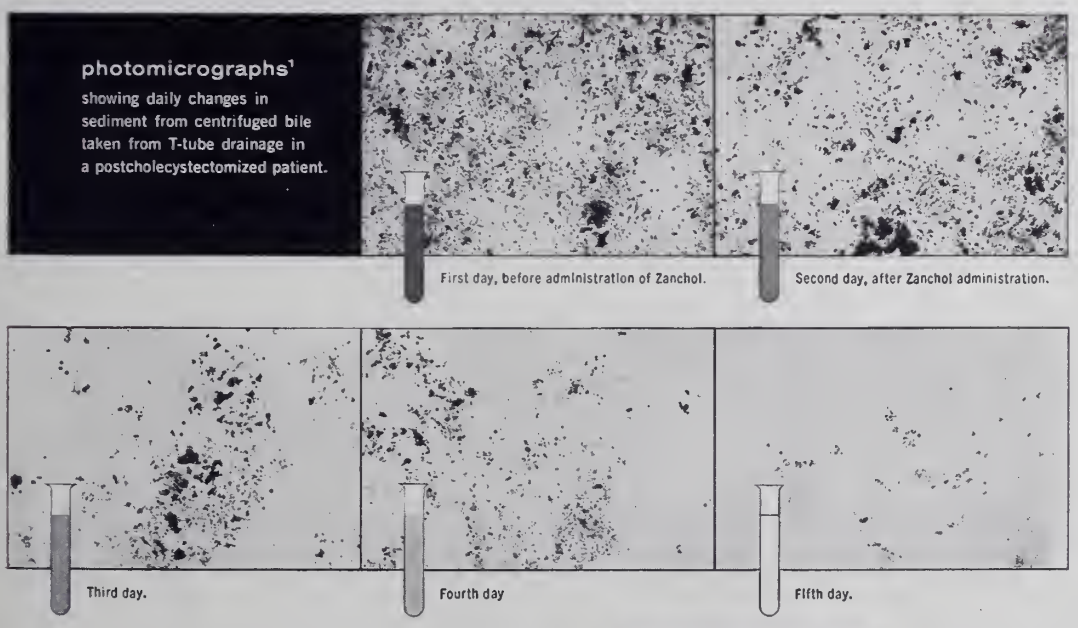
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1. McGowan, J. M.: Clinical Significance of Changes in Common Duct Bile Resulting from a New Synthetic Choleretic, Surg., Gynec. & Obst. *103*:163 (Aug.) 1956.

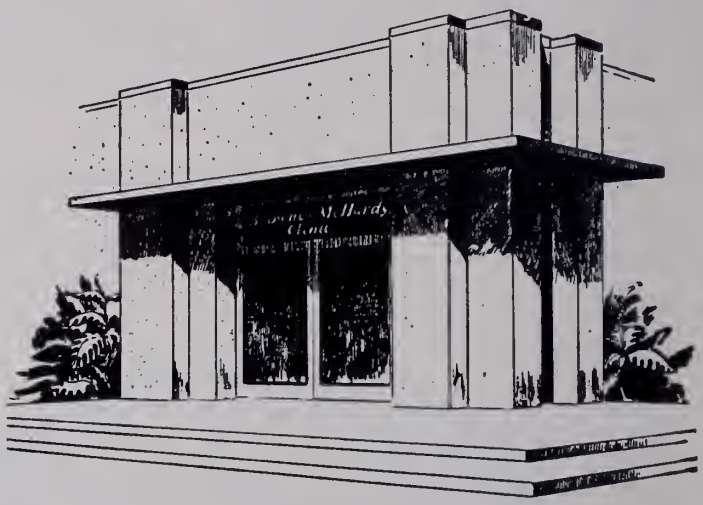
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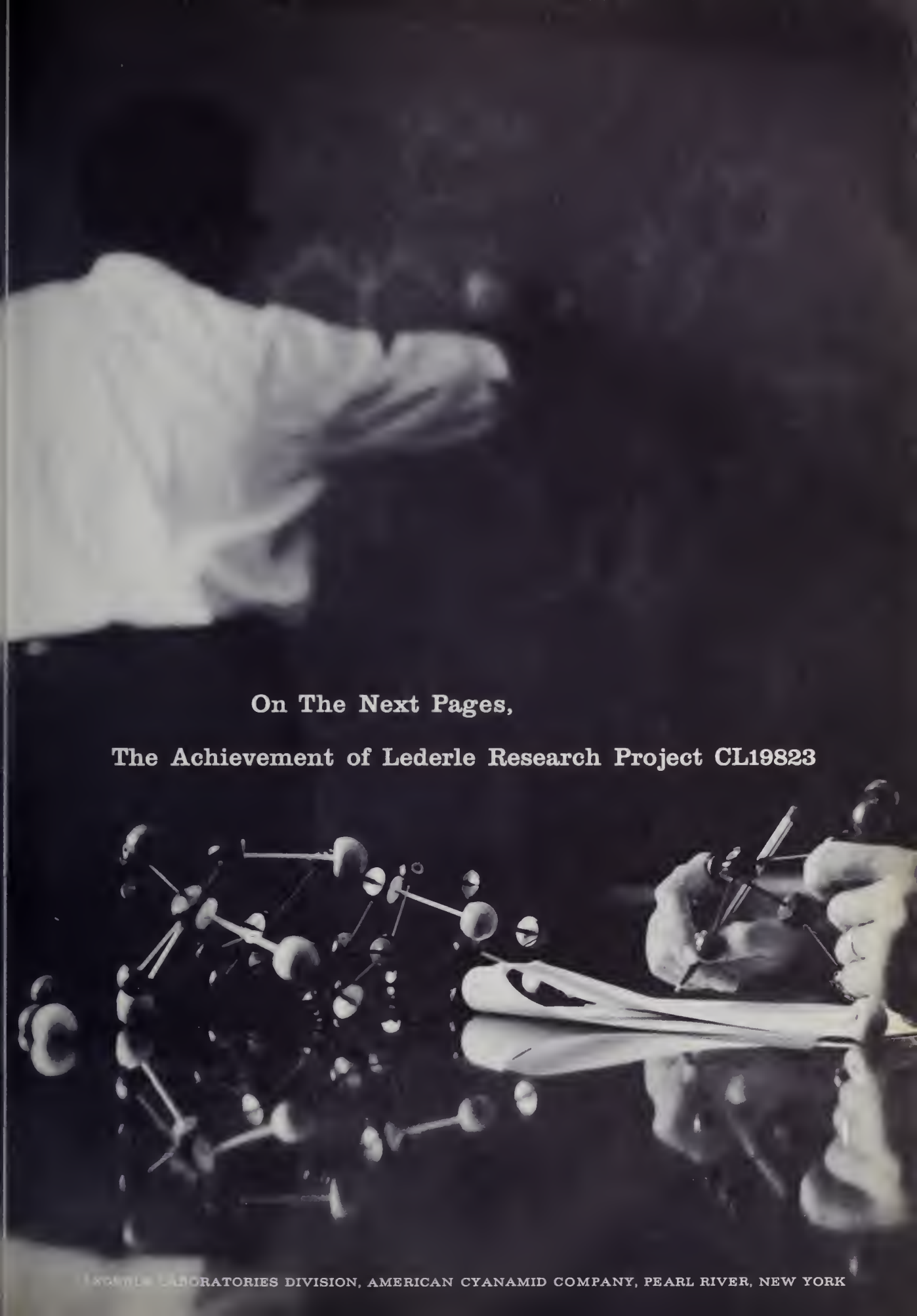
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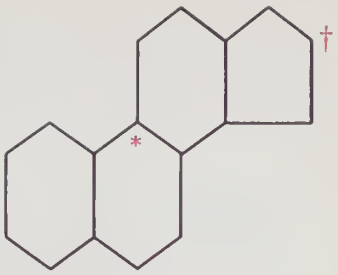
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- **a new low** in the collateral hormonal effects associated with all previous corticosteroids
  - No sodium or water retention
  - No potassium loss
  - No interference with psychic equilibrium
  - Low incidence of peptic ulcer and osteoporosis

Biological Effects of Aristocort

with particular emphasis on:

Kidney function

Animal studies on ARISTOCORT[1] have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.[1] Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.[2] Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.[3] Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.[4,5] In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.[6,7]

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.[1] Potassium balance studies in humans[2,3] revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.[6,7]

Calcium and phosphorus

Phosphate excretion in animals[1] was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies[3] demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.[3] At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.[2,3]

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.[8]



Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.[1]

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet[1] and cottonball[9] tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.[10] Clinical studies[11] of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.[12] The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

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The Promise of Aristocort in Reduction of Side Effects

It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are reported below.

Peptic Ulcer

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case[1]). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,[2] and toxic syndromes producing even convulsions and death.[3]

Since the onset of these complications is not directly related to duration of steroid administration,[4] the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension-Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.[5] Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.[1,6]

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.[7,8] Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.[1] These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, lightheadedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,[9] 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),[5] and in inflammatory and allergic skin diseases (33-50 per cent).[10,11]

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in lower incidence of major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort in Rheumatoid Arthritis

ARISTOCORT *therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.*

Significant is the fact that most patients were *severe* arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates[1] treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of* ARISTOCORT *sufficient to control arthritic symptoms.*

Hartung[2] treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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1. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957. 2. Hartung, E. F.: Paper presented at Florida Academy of General Practice, St. Petersburg, Florida, Nov. 2, 1957.

Lederle

The Promise of Aristocort in Respiratory Allergies

About 200 patients with respiratory allergies have been treated with ARISTOCORT *for continuous periods up to eight months.*

Results of treatment

Sherwood and Cooke[1,2] gave ARISTOCORT to 42 patients with bronchial asthma and allergic rhinitis. Average dose needed to control the asthmatic group was approximately 6 mg. per day (range, 2 to 14 mg.). Results, which were called "good to excellent" in all but four, were achieved on one-third less than similarly effective doses of prednisone or prednisolone.

The investigators noted other major improvements in ARISTOCORT therapy over the older steroids. There was no increase in blood pressure in any patient: *on the contrary, in 12 patients, there was reduction of pressure when they were transferred to* ARISTOCORT. One patient had required auxiliary antihypertensive drug therapy; over a nine-week period on ARISTOCORT, the pressure gradually fell from 206/100 to 136/79. In another case, the pressure slowly dropped from 205/105 to 154/86.

The number of cases in which these investigators tried ARISTOCORT in allergic rhinitis was not large enough to provide significant averages. However, the range of effective therapy was from 2 to 6 mg. per day. These strikingly low daily doses resulted in control of all signs and symptoms.

Schwartz[3] treated 30 patients with chronic, intractable bronchial asthma. At an average daily dose of 7 mg., he reported "good to excellent" results in all but one. Spies,[4] Barach[5] and Segal,[6] reported similar results at average daily maintenance doses of 4 to 10 mg. of ARISTOCORT.

Dosage and course of therapy

The initial dosage range recommended is 8 to 14 mg. of ARISTOCORT daily. Although a rare, very severe case may require more than this on the first day of therapy, these dosages will usually result in prompt alleviation of dyspnea, wheezing and cyanosis. Patients are soon able to carry out a normal span of daily activity.

The maintenance level is arrived at by reduction of the total daily dose every three days in decrements of 2 mg.; in the over-all series, the average daily dose for bronchial asthma is approximately 8 to 10 mg. and for allergic rhinitis, 2 to 6 mg. per day. All total daily doses should be divided into four parts and given with meals and at bedtime. As in every condition where corticosteroids are employed, each patient's treatment should be individualized and the maintenance arrived at by careful titration against signs and symptoms of disease.

Patients with chronic bronchial asthma may require steroid therapy for several months. And since asthma may be associated with cardiac disease, especially in the older age groups, ARISTOCORT is particularly useful because of its ability to cause excretion of sodium and water.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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Lederle

The Promise of Aristocort

in Nephrotic Syndrome

◊ *Fourteen patients with the nephrotic syndrome have been treated with* ARISTOCORT *for continuous periods of up to six weeks.*

Results of treatment

Hellman and associates[1,2] noted that ARISTOCORT, because of its favorable electrolyte effects, may well be the most desirable steroid to date in treatment of the nephrotic syndrome. However, thus far its use has been reported in only 14 children, of whom 8 had a complete diuresis and disappearance of all abnormal chemical findings. Four of the patients had diuresis, but continued to show some abnormal chemical findings, while two patients with signs of chronic renal disease failed to respond.

Dosage and course of therapy

In order to produce maximal response, 20 mg. should be given daily until diuresis occurs. The dose should then be decreased gradually and maintained around 10 mg. a day. After the patient has been in remission for some time, it may be advisable to diminish the dose gradually and discontinue ARISTOCORT.

in Pulmonary Emphysema and Fibrosis

◊ *Eleven patients with pulmonary emphysema and/or fibrosis were treated with* ARISTOCORT *for continuous periods of over two months.*

Results of treatment

Only small series of cases observed by Barach,[3] Segal,[4] and Cooke,[5] are available. Barach treated patients who were not adequately controlled by prednisone, with the same dose of ARISTOCORT with significant improvement.

Dosage and course of therapy

The initial suppressive dose range recommended is 10-14 mg. daily. Frequently, there is a prompt decrease in cyanosis and dyspnea, with increase in vital capacity.

The average maintenance dose level was 8 mg. a day. If it is desired to maintain a patient on continuous therapy for some months, dosages as low as 2 mg. a day have been successful. All decreases in dosage should be gradual and at a rate of 2 mg. decrements in total daily amount, every two to four days. The daily dosage is divided into four parts and given with meals and at bedtime.



in Neoplastic Diseases

◊ *Forty-four children and adults have been given* ARISTOCORT *for palliative treatment of acute leukemia, chronic lymphatic leukemia, lymphosarcoma, lympholeukosarcoma and Hodgkin's disease.*

Results of treatment

Farber[6] has treated 22 children with acute leukemia for an average of three weeks. Of the 17 observed long enough to judge the efficacy of the medication, he rated five as excellent, three as good, two as fair and seven as poor responses.

Hellman and associates[7] gave ARISTOCORT to a group of patients with the various lymphomas in doses of 40 to 50 mg. a day—occasionally up to 100 milligrams. Treatment was continued in some cases for 17 weeks. Response was classified as good for the palliative purposes for which the drug was given.

Dosage and course of therapy

Massive initial suppressive doses of 40 to 50 mg. per day in children (1 mg./kg./day) and up to 100 mg. a day in adults have been administered.

Responses to any specific dosage in these conditions vary so widely that only a general dosage range can be indicated. Treatment must be individualized; rate of reduction in dosage and determination of maintenance levels cannot be categorized.

Miscellaneous

Patients with various other diseases have been treated by several clinical investigators. These include patients with osteoarthritis, acute bursitis, rheumatic fever, spondylitis, other "collagen-vascular" diseases (dermatomyositis, etc.), thrombocytopenic purpura, chronic eosinophilia, hemolytic anemia, diuretic-resistant congestive heart failures, and adrenogenital syndrome.

There have not been sufficient patients in any of the above categories to permit definitive treatment schedules to be finally established for ARISTOCORT. Additional studies are now in progress and physicians desiring information on any of these diseases are requested to write to Lederle Laboratories, Pearl River, New York for available data.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Inflammatory and Allergic Skin Diseases

◊ *Over 200 patients with allergic and inflammatory skin diseases (including psoriasis, atopic dermatitis, exfoliative dermatitis, pemphigus, dermatitis herpetiformis, eczematoid dermatitis, contact dermatitis and angioneurotic edema) have been treated continuously with* ARISTOCORT *for periods of up to eight months.*

Results of treatment

Rein and associates[1] treated 26 patients with severe dermatitis. Twenty-four had been on prednisone when changed to ARISTOCORT. While some had found satisfactory symptomatic relief, others had also developed side effects—moon face, buffalo hump, increased appetite with excessive weight increases and gastro-intestinal disturbances.

These investigators determined the equivalent dosage of ARISTOCORT to be approximately two-thirds that required to control symptoms on the previous corticosteroid. Thirteen of the 26, who had developed moon face, noted either an actual decrease or no further increase when transferred to ARISTOCORT. In addition: *Voracious appetites disappeared, with loss of weight in 11 patients; there was no elevation in blood pressure, and no necessity to restrict sodium or administer supplemental potassium.* Sherwood and Cooke,[2] and Shelley and Pillsbury[3] obtained similar results in allied disorders.

Hollander[4] first observed that ARISTOCORT appears to have striking affinity for the skin and great activity in controlling such diseases as psoriasis, for which other corticosteroids have been indifferently effective. Shelley and Pillsbury,[3] in 50 cases of acute extending psoriasis found that over 60 per cent were markedly improved.

Dosage and course of therapy

The recommended initial suppressive dose range is 14 to 20 mg. per day. In very severe cases, temporary dosages up to 32 mg. a day have been successfully employed. Once lesions are suppressed, gradually reduce dose to the maintenance level—which may be as low as 2 mg. per day.

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in Disseminated Lupus Erythematosus

◊ *Forty patients with disseminated lupus erythematosus were treated with* ARISTOCORT *for continuous periods of up to nine months.*

Results of treatment

Patients have responded very promisingly to therapy. Dubois[1] has had the largest single experience (28 cases) with ARISTOCORT in the treatment of this disease. He reported 25 of the 28 responded favorably.

Freyberg,[2] Hartung,[3] Hollander,[4] Spies,[5] and Segal,[6] each in smaller series of cases, reported similarly good therapeutic responses.

Dosage and course of therapy

The initial suppressive dose recommended is 20-30 mg. daily. Once the desired effect is achieved, the dose should be reduced gradually to maintenance levels (3 to 18 mg. per day).

In severely ill patients large doses may be required for several days in order to preserve life. Even on these large doses, edema and sodium retention have not occurred.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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references: 1. Strub, I. H.: Personal communication. 2. Ayd, F. J., Jr.: presented at Ohio Assembly of General Practice, 7th Annual Scientific Assembly, Columbus, September 18-19, 1957.

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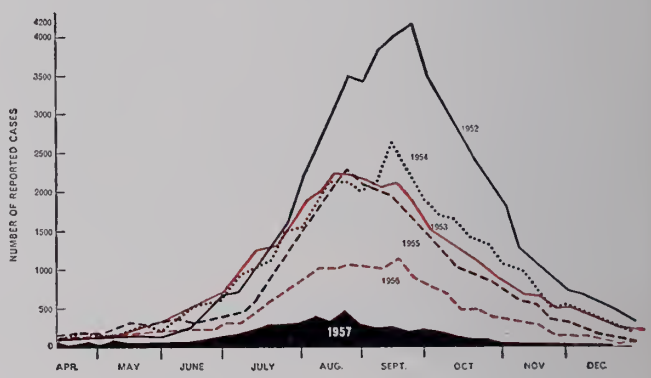
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THE DIAGNOSIS AND MANAGEMENT OF ANGINA PECTORIS *

MANUEL GARDBERG, M. D. †

New Orleans

It will be possible only to attempt to emphasize a few important practical points relating to the diagnosis and management of angina pectoris.

Some of the correctible sources of error in the diagnosis of this very common ailment are as follows:

1. Popular misconception regarding the symptomatology of the disease.
2. Difficulties in electrocardiographic interpretation.
3. Misconception regarding the action of nitroglycerin.

SYMPTOMATOLOGY

Too many persons, physicians, nurses, and laymen alike, apparently labor under the misapprehension that the pain of angina pectoris is always severe. Actually it is frequently not at all severe and because of this it is often dismissed as unimportant, or attributed to "gas", "indigestion", neuralgia or "tension". Too many persons apparently labor under the misapprehension that the pain in angina pectoris is located either in the anterior chest wall in the midline or over the heart, or in the left arm or both arms. Actually the pain may be located only in the jaw, the throat, behind either shoulder, in the back between the shoulder blades or at the base of the neck, or in any location or combination of locations anywhere in the body above the navel. More detailed description may be found elsewhere. The chief distinguishing characteristic of the symptomatology of angina pectoris is furnished by the fact that for each individual patient the discomfort always begins in the same area with each attack. In addition, if the discomfort radiates to other areas, then the manner in which it radiates is also the same in every attack, although the extent of the radiation depends upon the duration and the severity of the attack.

The character of the discomfort may be described as sharp pain, a sensation of pressure or a lump, burning, numbness, or tingling. It may last only a few seconds or an hour or more. It may be intermittent, consisting of mild discomfort lasting a few minutes and recurring at intervals of a few minutes.

There is much popular misconception regarding the quantitative relation of the attacks to exertion. Almost everyone knows that the attacks are precipitated by emotional tension and by exertion. When the attacks are precipitated by ex-

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* Presented at the Seventy-seventh Annual Meeting of the Louisiana State Medical Society, May 7, 1957, New Orleans.

† Clinical Associate Professor of Medicine, School of Medicine, Louisiana State University. Director, Cardiac Research Laboratory, Touro Infirmary at New Orleans.

The Cardiac Research Laboratory at Touro Infirmary operates under grants of the John A. Hartford Foundation of New York, the J. Aron Research Fund, and is also supported by the Department of Medicine of Louisiana State University.

ertion many have assumed that the likelihood of precipitation of an attack by activity is proportional to the quantity of exertion involved in that activity. Although this is frequently true, the relation between the attacks and the activity which precipitates them is often more specific than quantitative. Many persons have pain as a result of walking one block who can climb flights of stairs without having the slightest discomfort. Carpenters and automobile mechanics who have had no attacks while working hard have reported that they have them regularly while walking to the bus stop, or while maneuvering the car into a parking space. These inconsistencies are so common that they may almost be regarded as characteristic. Yet errors are commonly made because of the mistaken expectation of consistency in the relation between the attacks and the exertion which precipitates them.

THE ACTION OF NITROGLYCERIN

When a patient suffers paroxysmal attacks of discomfort in the upper half of the body in each of which the location and manner of radiation of the discomfort (if any) is always the same, and if these attacks are invariably relieved within two to four minutes by nitroglycerin, then that patient suffers with angina pectoris. Necessarily, the conclusion that nitroglycerin has relieved the attacks in dramatic fashion can only be arrived at if it is known that previous attacks have lasted much longer than the time required for nitroglycerin to act. In some cases anginal attacks last less than five or six minutes. Obviously, in these the effect of nitroglycerin cannot be used as diagnostic evidence. We must resort to the electrocardiogram.

Some have nursed the notion that nitroglycerin relieves the pain of biliary colic, intestinal colic, and other conditions. I can only say that I have not seen nitroglycerin relieve any paroxysm of pain in dramatic fashion except in the presence of angina pectoris.

ELECTROCARDIOGRAPHIC INTERPRETATION

It is probably safe to say that no other one thing in the field of medicine has given rise to more errors than misinterpretation of the electrocardiogram. Our errors occur among that great number of patients whose discomfort is either not in the classic location or cannot be proved to respond to nitroglycerin. When confronted by this problem it is necessary to know: (1) that the electrocardiogram is most frequently normal between attacks and that the diagnosis is evident *only if an electrocardiogram is made during an attack;* and (2) that if the electrocardiogram is abnormal between attacks the presenting symptom may still be due to noncardiac disease unless serial interim tracings show significant progressive or regressive changes.

Failure to realize that in many cases the electrocardiogram shows changes only during the attacks has led to many unfortunate errors. One patient with epigastric pain radiating to the back was studied over a period of three months including three admissions to two hospitals, numerous electrocardiograms, two gall bladder visualizations, two gastrointestinal series, two barium enemas, and an imposing array of other laboratory procedures. It was finally suggested that he have an exploratory laparotomy. The most important fact discovered in taking his history was that none of the numerous electrocardiograms had been made during an attack of pain. Accordingly arrangements were made to record an electrocardiogram during his next attack. This occurred some thirty-six hours after he was first seen. The electrocardiograms made at this time are seen in Figure 1. There can now be no doubt about the diagnosis. Needless to say he did not have a laparotomy.

If it is impossible to make an electrocardiogram during a spontaneous attack attempts are made to induce an attack by reproducing in the office the conditions under which the attacks occur spontaneously. These conditions may be specific

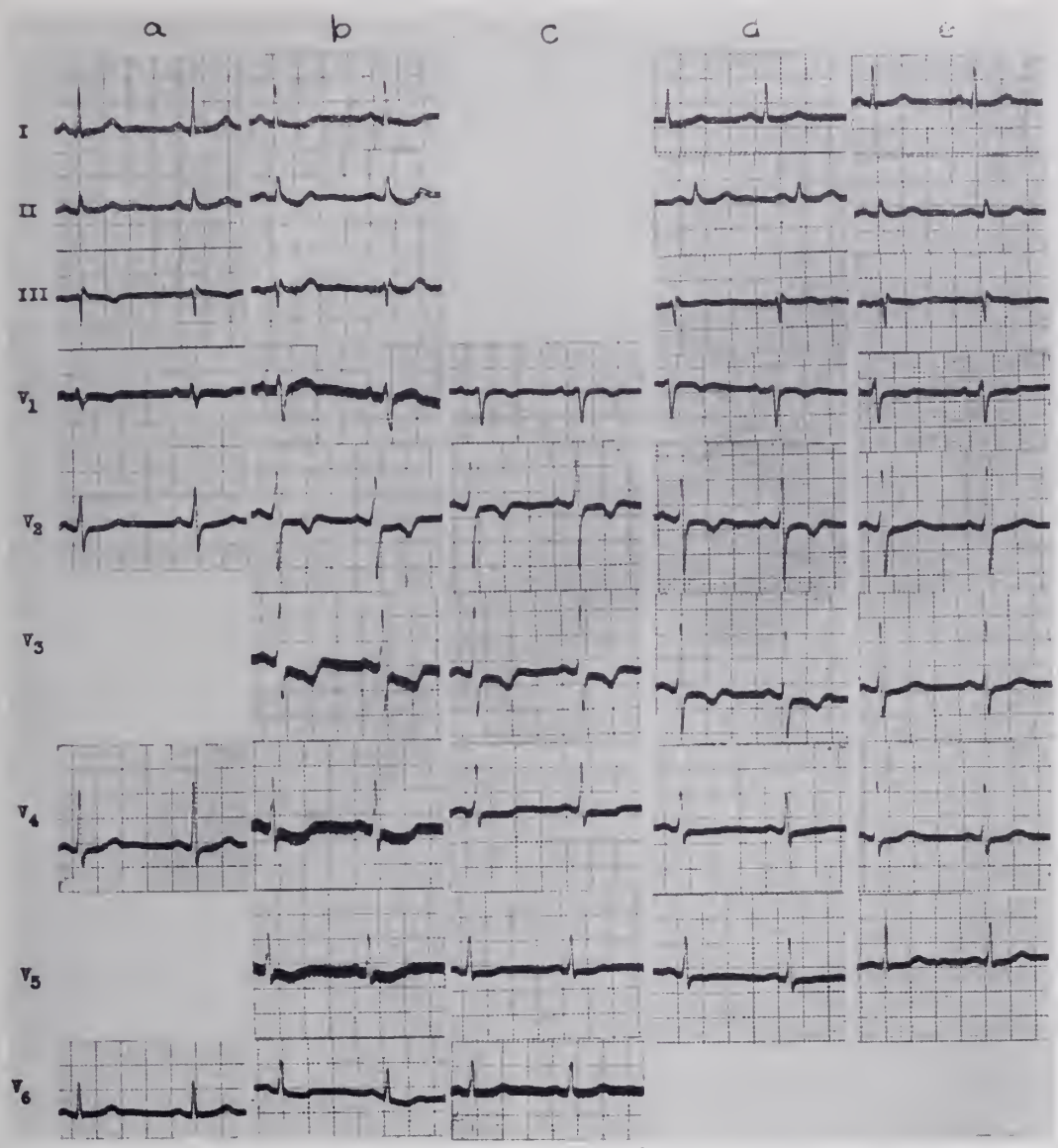


Figure 1—a The routine electrocardiogram made when the patient was first seen. b, c, d, and e were made in sequence over a period of 20 minutes during and after a spontaneous attack of angina.

Exercise tracings made 20 hours before were negative.

exertions, the taking of food, exposure to cold and combinations of these. Even when no relation to exertion is obvious in the history, electrocardiograms are made before, immediately after, and five and ten minutes after twenty deep knee bends done very rapidly. This constitutes greater exertion than that involved in the performance of the Master's double two step test. If pain occurs at any time the exercise is stopped and an electrocardiogram is recorded. Occasionally the diagnosis is revealed in this way. However, it is extremely important to point out that many patients whose electrocardiograms remained normal following twenty deep knee bends, within a few days, showed, during a spontaneous attack, electrocardiographic changes which were pathognomonic of angina pectoris (Figure 1). Evaluation of exercise electrocardiograms requires detailed knowledge of the effects of exercise on the electrocardiogram in normal persons. Unfortunately,

normal changes between the control and exercise tracing are frequently attributed to coronary disease.

If no opportunity is had to make observations during a spontaneous attack and no attack can be precipitated by exercise or other methods the electrocardiogram may be of little help. The interim tracing may be normal or abnormal. Even in the latter case the diagnosis is not assured because many persons of middle age or older have arteriosclerotic electrocardiographic changes which are not necessarily related to the symptoms. If over a period of several days progressive or regressive changes in the electrocardiogram are observed the diagnosis may be made on this basis. However, in order to be able to evaluate these serial changes it is necessary to be able to distinguish changes due to a variety of nonpathological factors such as rate change, food, exertion, smoking and changes in cardiac position from those due to disease. Indeed, familiarity with the effects of these factors is necessary to the interpretation of the single electrocardiogram.

Occasionally the electrocardiogram shows no change even at the height of a very severe attack. Only repeated dramatic relief by nitroglycerin or positive electrocardiographic signs in a subsequent attack can then make the diagnosis.

Some of the most difficult problems are presented by those patients who are known to have heart disease (even previous myocardial infarctions) and who develop pains in the chest, epigastrium or other areas which may actually be due to noncardiac disease. Here, again electrocardiographic observation during the attacks may be of the utmost importance. If repeated observation shows that little or no change in the electrocardiogram occurs other causes of the pain should be sought. Space does not permit full discussion of this problem.

THE MANAGEMENT OF ANGINA PECTORIS

The object of management of this condition is the preservation of the normal functional state of the individual. The most important problem is encountered as soon as the diagnosis is made, and is constituted by the patient's emotional reaction to the information that he has angina pectoris. His apprehensions, generally expressed in terms of what he has heard about other cases in his family or among his friends, or in terms of what he has heard from others or has read in lay journals, must be explored and exposed in detail. Intelligent reassurance must be offered and if the patient is in a nonlaborious occupation he must be taught from the very beginning that he will be able to continue with his usual occupation.

Nitroglycerin is used to abort the attacks and the patient must be taught that it must be used as early in the attack as possible. This advice usually has to be repeated several times because many patients attempt to "get by" attacks without the use of nitroglycerin in the mistaken notion that their progress can be measured by how few nitroglycerin tablets they use. Experience has taught that this method of keeping score is self-defeating, for if the patient uses nitroglycerin at the very inception of every attack it is generally found that the attacks will soon occur less and less frequently. The patient must be taught to treat the attacks casually, to abort the pain as early as possible in the attack and to forget that the attack has occurred as soon as the discomfort is gone. The development of such an attitude usually requires several months and the degree of success which can be realized in attaining it depends upon the personality of the patient and upon the degree to which the physician encourages it. Such patients should not be treated by physicians who are fearful that their reputations will be damaged if a patient whom they have encouraged to activity happens to drop dead during that activity. Such physicians create, unnecessarily, too many psychologically determined cardiac cripples. This is not to say that judgment should not be exercised. If a patient is having *very* frequent attacks of severe

onset it is wise to advise bed rest or home rest for a trial period but even in these cases the patient is advised that he is expected to return to work within a relatively short period of time. Most often the frequency of the attacks is reduced to a marked extent within a few days or a week perhaps with the help of nitroglyn and sedation. If after a week has passed the attacks occur once or twice daily and there is no significant change in the electrocardiogram the patient is returned to nonlaborious work on a limited basis. The limit is raised as rapidly as possible.

If the attacks do not tend to subside rapidly or if they become more frequent during bed rest one must conclude that he is probably dealing with imminent infarction. Such patients should be treated with anticoagulants, so-called "coronary dilators", and sedation. Frequent electrocardiographic observations must be made to detect infarction if it occurs. This may take place slowly. In some cases infarction does not occur for a number of weeks if at all, and the morale of the patient and of the family becomes an enormous problem. Consultation with other reputable physicians in the neighborhood will be of some help in this regard. However, nothing can completely relieve the anxiety associated with the knowledge that one is sitting on a barrel of nitroglycerin. In a few of these severe cases very much prolonged duration of a period of very frequent attacks justifies the use of antithyroid measures such as tapazole, or radioactive iodine.

Fortunately, most cases fall in the first group described; the attacks subside in frequency within a relatively short period and the patient returns to function in the manner already related. Something should be said with regard to permanent restrictions. This is a large subject and can only be touched upon here. It is important to encourage the patient to live as normally as possible. Nowhere else in medicine is it so clear that "a light heart lives longer". Never should a patient be handed a printed list of "don'ts". One should emphasize the things that he *can* do. Relief of tension is the greatest single factor in improvement. To this end family and business problems are discussed. To this end normal sexual relations are encouraged and three or four highballs daily are advised.

The most ridiculous advice that can be given a human being is "don't worry and don't get excited". These things are not under the control of the will and one cannot live again in the womb though many have tried. Circumstances give rise to worry and excitement regardless of the physician's advice. The effect of the advice is to tend to make the patient suppress his feelings instead of expressing them and suppressed feelings generate tension which is destructive. Another effect of such advice is that it frightens the patient; he feels that he must be fragile indeed if he cannot stand a bit of excitement—sudden death must be hovering over him.

The use of tobacco is a moot point in these cases. I do not prohibit the use of tobacco unless it causes attacks or unless it causes excessive coughing. Deprivation of smoking frequently causes heightened tension which is more threatening than the theoretically objectional effects of smoking tobacco.

I do not encourage physical exercises. Patients who have angina may be permitted much necessary activity but I see no sense in encouraging unnecessary physical exertion. I know of no well-founded scientific investigation that offers any basis for the notion that a middle-aged human being really needs to idly flex his muscles for any other than puerile psychological reasons.

Finally, it is well to stress the fact that the most destructive force in the life of many cardiac patients is the spouse who is constantly "on his neck" with don'ts. After all, there is no reason why he cannot open an ordinary window which is not stuck, move a chair which does not weigh twenty-five pounds, bend down to pick up something off the floor, or per-

form many other simple acts. He may even climb stairs if he can do so without discomfort.

A summary and conclusions for such a paper as this is unnecessary and would constitute a waste of space.

DISCUSSION

Dr. C. T. Yancey (Monroe): I wish to congratulate Dr Gardberg on the scope of this paper since he has emphasized many of the misconceptions relating to the diagnosis and management of a frequently found syndrome. Misdiagnosis of angina has many ramifications, and as alluded to by Dr. Gardberg, influences the psyche of an entire household when such a diagnosis is made. The economy and future planning for an entire family must be considered. Too much time cannot be spent in explaining what the condition is and how it should be managed from the standpoint of exertion, emotional problems, and the use of medications.

Frequent revaluation of the symptoms should be done since many other disease states too numerous to enumerate may simulate anginal syndrome. Careful history relating to the pulmonary, gastrointestinal tract and genitourinary tract may divulge a lead which will eventually disprove the anginal diagnosis and bring to light another disease state which is amenable to medical or surgical therapy. The coexistence of proven angina and another disease state poses a hazardous problem which should be evaluated carefully by one or more consultations before definite action is taken.

I thoroughly agree with the author that the use of the electrocardiogram has been a definite boon to the diagnosis of angina, but misinterpretations and miscorrelation of symptoms with the electrocardiogram have led to an erroneous diagnosis many times. The author's advice with regard to frequent use of the electrocardiogram especially during bouts of pain, is sound and scientific and should be employed more frequently. There are several methods by which electrocardiographic changes signifying coronary ischemia can be reproduced, but one should be cognizant that both false positive and false negative results can be recorded. Relief of induced or spontaneous pain by nitroglycerin is by far the most reliable method by which the diagnosis can be made.

The management of the patient during the early stages, after the diagnosis has been made, with reassurance, weight reduction if indicated, control of exertion and emotion, and the use of nitroglycerin have been emphasized by Dr. Gardberg but cannot be stressed too frequently. Also the treatment of precipitating causative factors especially those relating to the gastrointestinal tract and lungs should not be neglected. Diabetes mellitus coexistent with coronary ischemia deserves meticulous attention. Either overzealous use of insulin with resultant hypoglycemic reactions or neglect of hyperglycemia and acid base imbalance will aggravate the anginal syndrome and may lead to myocardial infarction.

One of the most interesting phenomenon in the history of the anginal syndrome is the reduction or relief of pain following an acute myocardial infarction. The area involved by infarction becomes necrotic and avascular therefore does not respond to ischemic changes as it did prior to the attack of infarction.

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THE DIAGNOSIS OF SICKLE CELL DISEASE IN PEDIATRICS

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INTRODUCTION

The significance of various percentages of erythrocyte sickling on the standard sickle cell preparation frequently raises unanswered questions on the pediatric service. It was therefore decided to review the charts of all pediatric patients who had electrophoretic determination of hemoglobin type here from January, 1955, when our laboratory began doing electrophoretic studies on hemoglobin, through June, 1957. Other questions which we hoped to answer from our own cases were: (1) What is the average hemoglobin level of patients with sickle cell anemia? (2) How does this compare with the hemoglobin level in sickle cell trait and with the "normal" hemoglobin of the same age, race, and area? (3) What other information helps to establish the diagnosis of sicklemia?

Up to this point, I have purposely used four different terms related to the entity which we are discussing. The wide use of all of these terms results in misunderstanding unless we define them and indicate the way in which each is used. "Sickle cell disease", sickle cell anemia", and "sicklemia" are used synonymously here to denote patients having sufficiently high percentage of hemoglobin S to produce symptoms from that cause alone. "Sickle cell trait" is used to denote patients with some hemoglobin S, but of insufficient quantity to produce symptoms. These would be clinical definitions. Defined in terms of genetics, a patient with sickle cell anemia is one who has received the gene for hemoglobin S from both parents, and a patient with sickle cell trait is one who has received the gene for hemoglobin S from only one parent. Usually the other gene is for hemoglobin A, the normal adult hemoglobin. However, it may be some other type such as, for example, hemoglobin C.[1] Combinations of the rarer types are beyond the scope of this paper.

A total of 111 charts were studied. These represented all pediatric patients who had had hemoglobin electrophoretic studies done through June, 1957, and twenty Negro pediatric patients chosen at random as a control: In order to analyze the data, the charts were divided as follows: (1) patients with 100 per cent hemoglobin S as determined by electrophoresis, (2) patients with combinations of hemoglobin S and hemoglobin A, (3) patients with 100 per cent A, and (4) the 20 charts used as a control. Table 1 shows the hospital diagnosis which had been made in each case. Three charts were eliminated because of conflicting results of electrophoresis when two or more determinations had been made.

TABLE 1
HOSPITAL DIAGNOSIS AND HEMOGLOBIN TYPE OF ALL PATIENTS STUDIED

	Sickle Cell Disease	Sickle Cell Trait	Other	Total
100% Hemoglobin A	1	0	27	28
S and A Hemoglobin	12	3	18	33
100% Hemoglobin S	25	0	2	27
Control	0	0	20	20
Eliminated	0	0	3	3
Total	38	3	70	111

FINDINGS

In examining the charts, the highest and lowest hemoglobin recorded for each patient was noted. This gives us two sets of figures to compare and was done in lieu of calculating the average hemoglobin of each patient. From these figures, we

TABLE 2
AVERAGE HEMOGLOBIN* ACCORDING TO HEMOGLOBIN TYPE

	High (Range)	Low (Range)
Control	12.1 (9.8-15.1)	9.7 (4.3-12.4)
100% A	10.5 (6.7-14.9)	7.6 (2.9-13.2)
S and A	11.4 (4.2-14.1)	8.5 (4.2-12.6)
100% S	10.1 (7.6-14.1)	5.0 (2.5-10.9)

* Determinations recorded in the birth admission are not included.

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have determined two average hemoglobins for each group—the average of the high hemoglobins and the average of the low hemoglobins. These figures are seen in Table 2 which also shows the ranges of hemoglobin level in each group. In the control group, the hemoglobin ranged from 4.3 grams per 100 cc. of blood to 15.1 grams per 100 cc. of blood. The average of the highest hemoglobins was 12.1 and the average of the lowest hemoglobins was 9.7. However, these should not be considered normal hemoglobin values since some of them are obviously much below normal and they are from hospital patients instead of well children. They are, simply, averages of a random hospital population. For those patients with 100 per cent hemoglobin S, the range of hemoglobin levels was not greatly different from the control. It was 2.5 to 14.1. However, the average high hemoglobin was 2.0 grams less than the control and the average low hemoglobin was 4.7 grams less than the control. It should be mentioned at this point that the 100 per cent S group received a total of 136 blood transfusions, which is an average of five transfusions per patient. Seventeen of the 27 in that group had blood within one month prior to the time that the highest hemoglobin was recorded. The group with 100 per cent A and those with combinations of S and A fall between the control group and those with 100 per cent S. Surprisingly, the 100 per cent A group was found to have lower values than the SA group. The hemoglobin levels in the SA group approach the control levels. A plausible explanation for this finding is that in the 100 per cent A group, the electrophoretic determination of hemoglobin type was often done in working up an anemic patient. In the SA group, it was more often done because of the finding of a positive sickle cell preparation which is often done as a routine procedure on Negro patients. In this entire group, only two blood transfusions were given. This finding leads to the impression that patients with less than 100 per cent hemoglobin S are not likely to have a marked, persistent anemia.

Table 3 gives a breakdown of the group having both hemoglobin S and hemoglobin A with the average hemoglobin for each percentage of hemoglobin S as well as the percentage at which sickling is first seen on a sickle cell preparation. Though this group is too small to establish any definite conclusions, it is readily seen that the groups with higher percentages of hemoglobin S do not have lower hemoglobins than those with a predominance of hemoglobin A. It is of interest, also, that of the 33 patients in this group, all except 1 had 60 per cent or less hemoglobin S. In other words, only 1 patient had between 60 per cent and 100 per cent. Only 3 had more than 50 per cent hemoglobin S. Most of the group, 27 of 33, had between 20 per cent and 50 per cent hemoglobin S. In reporting various percentages of the different types of hemoglobin, the technician must make an estimate unless it is all of one type. Therefore, these are not exact determinations. Because of the finding that most of this group have in the neighborhood of 50 per cent hemoglobin S or less and the relatively high average hemoglobin in this group, we can consider these patients to have sickle cell trait. This is substantiated by the paucity of symptoms and signs in this group as will be shown later.

TABLE 3
HEMOGLOBIN LEVEL ACCORDING TO AMOUNT OF HEMOGLOBIN S

Percentage of Hemoglobin S*	Hemoglobin High	Hemoglobin Low	Number in Each Group	Sickle Cell Preparation (Highest percentage recorded)
5%	11.3	9.8	1	Negative
11%	4.2	4.2	1	Not done
10-15%	9.9	9.0	1	Negative
20%	11.0	6.8	4	100%
30%	12.0	9.6	5	100%
40%	11.8	8.5	12	100%
50%	11.3	8.9	6	100%
51%	11.5	9.3	1	100%
60%	14.1	11.0	1	100%
60-80%	11.5	6.3	1	100%

* Hemoglobin A made up the remainder in all cases.

Going now to a consideration of the

significance of sickle cell preparations, we see the data in Table 4. Here, we find that 45 per cent of the preparations of the patients with sickle cell trait had 100 per cent sickling. Table 3 shows that this can occur with as little as 20 per cent hemoglobin S. Also, in Table 4 again, 11 per cent of those with sickle cell anemia had 50 per cent sickling or less, one as low as 5 per cent. These findings indicate that the percentage of sickling on a sickle cell preparation is not significant. A positive preparation of any degree is evidence that the patient has either sickle cell trait or sickle cell disease. Although not shown in the tables, it should be mentioned that of the 16 patients with 100 per cent hemoglobin A who had sickle cell preparations, sickling was reported in 2, 50 per cent in one instance and 100 per cent in the other. This shows that false positives may occasionally be reported, possibly due to error in the laboratory or in recording. Also, it is seen in Table 4 that 12 per cent of patients with sickle cell trait had negative sickle cell preparations.

Included also in Table 4 is a finding of greater significance than the sickle cell preparation—that of sickling on a routine Wright's stain blood smear. This was found only once among those with sickle cell trait, but was found 88 times among those with sickle cell disease. Twenty-one individuals (78 per cent) had this finding at least once. This is, by definition, sicklemia. Its absence does not rule out sickle cell disease, but finding it is strongly indicative that the patient has 100 per cent hemoglobin S.

Other laboratory data studied are red cell indices, red cell fragility, and serum bilirubin. These results are only for the patients with 100 per cent hemoglobin S. Bilirubin determination was done a total of 26 times, for 17 patients. Nineteen times (73 per cent) the total bilirubin was greater than one milligram per cent and 7 times (27 per cent) it was less than one milligram per cent. This excludes patients known to have hepatitis. Of 4 red cell fragility determinations, 3 had beginning hemolysis in a concentration of saline lower than the control and all had complete hemolysis in a concentration lower than the control. The red cell indices of 10 patients had been calculated. The averages are as follows: mean corpuscular volume, 77.5 cubic microns; mean corpuscular hemoglobin, 25.9 micromicrograms; and mean corpuscular hemoglobin concen-

TABLE 4
RESULTS OF SICKLE CELL PREPARATIONS AND INCIDENCE OF SICKLING ON WRIGHT'S STAIN BLOOD SMEAR ACCORDING TO HEMOGLOBIN TYPE

All Sickle Cell Preparations	Sickle Cell Trait (Hemoglobin S and A)		Sickle Cell Anemia (100% Hemoglobin S)	
	Number	Percentage	Number	Percentage
Negative	5	12%	0	0
1-50% Sickling	5	12%	6 (Lowest 5%)	11%
51-99% Sickling	13	31%	17	30%
100% Sickling	19	45%	33	59%
Total	42		56	
Results of Sickle Cell Preparation by Patient				
Negative	4	12%	0	0
Positive	26	79%	25	93%
Positive and Negative	1	3%	0	0
Not Done	2	6%	2	7%
Total	33		27	
Wright's Stain Blood Smear				
Total Positive	1		88	
Positive Individuals	1	3%	21	78%

tration, 34.6 per cent. The former two figures are slightly lower than normal and the latter figure is within normal range. This is the same type of abnormality which is found in iron deficiency anemia and is, therefore, of no diagnostic aid here.

Table 5 shows the signs and symptoms encountered in the patients having 100 per cent hemoglobin S as compared with those having both S and A. The symptoms which occurred most commonly in the sickle cell disease group were abdominal pain, pain in the arms or legs, joint pain, back pain, swelling in the arms or legs, and exertional dyspnea. The common physical findings were icterus, hepatomegaly, systolic murmur, splenomegaly, and chronic leg ulcer. Some of the same signs and symptoms occurred in the sickle cell trait group, but in a much smaller percentage of cases. More commonly, the findings in this group were referable to some unrelated disease and the finding of sickle cell trait was incidental. The signs and symptoms related to these other diseases are not shown in the table. Common findings in sickle cell anemia which are not listed in Table 5 were fever and elevated white blood cell count. It is felt that these were usually due to intercurrent infection which is common in sicklemia patients, probably because of a low resistance which, in turn, is due to inadequate hemoglobin. Pallor is also not listed and was, of course, a common finding.

SUMMARY AND CONCLUSIONS

On the basis of the information given above the following conclusions have been reached.

1. The average hemoglobin of hospitalized Negro pediatric patients in this area is from 9.7 to 12.1 grams per 100 cc. of blood.

2. Patients with a combination of S and A hemoglobin have, as a group, a hemoglobin level slightly lower than this.

3. Patients with 100 per cent hemoglobin S have an average hemoglobin of 5.0 to 10.1 grams. These figures would be much lower were it not for the fact that the patients had received an average of five transfusions each.

4. Patients with as little as 20 per cent

TABLE 5
SIGNS AND SYMPTOMS ACCORDING TO HEMOGLOBIN TYPE

Symptoms	100% Hemoglobin S		Hemoglobin S and A	
	Number	Percentage	Number	Percentage
Abdominal Pain	12	44%	3	9%
Limb Pain	11	41%	3	9%
Joint Pain	7	26%	3	9%
Back Pain	7	26%	1	3%
Limb Swelling	4	15%	1	3%
Exertional Dyspnea	4	15%	1	3%
Malaise	3	11%	1	3%
Anorexia	3	11%	0	0
Chest Pain	2	7%	2	6%
Epistaxis	2	7%	1	3%
Headache	2	7%	1	3%
Joint Swelling	1	4%	0	0
Face Swelling	1	4%	1	3%
Poor Development	1	4%	0	0
Abdominal Distention	1	4%	0	0
Signs				
Icterus	13	48%	0	0
Enlarged Liver	13	48%	1	3%
Systolic Murmur	12	44%	0	0
Enlarged Spleen	11	41%	2	6%
Leg Ulcers	4	15%	1	3%
Limb Tenderness	3	11%	0	0
Joint Tenderness	3	11%	0	0
Abdominal Tenderness	1	4%	0	0

hemoglobin S can have 100 per cent sickling on a sickle cell preparation.

5. Patients with 100 per cent hemoglobin S can have as little as 5 per cent sickling on a sickle cell preparation.

6. A positive sickle cell preparation usually indicates that the patient has either sickle cell trait or sickle cell disease. However, false positives do occur.

7. A negative sickle cell preparation probably rules out sickle cell anemia, but it does not rule out sickle cell trait.

8. The finding of sickled cells on a Wright's stain blood smear is practically diagnostic of sickle cell anemia, but the absence of this finding does not rule out the diagnosis.

9. In sicklemia, the total serum bilirubin is frequently elevated.

10. Based on only four cases, it appears that the red cells of patients with sickle cell disease are less fragile in hypotonic saline than those of normal controls.

11. Red blood cell indices do not appear to be of any diagnostic value in sickle cell disease. This is based on only 10 cases.

12. The common symptoms and signs of sickle cell disease are abdominal pain, limb pain, joint pain, back pain, limb swelling, exertional dyspnea, icterus, hepatomegaly, systolic murmur, splenomegaly, leg ulcer.

13. Patients with less than 100 per cent hemoglobin S usually have about one-half or less hemoglobin S, relatively high hemoglobin, relatively few symptoms, and seldom require a blood transfusion. For these reasons, we consider this group to have sickle cell trait.

Note: Acknowledgement is made to Dr. C. H. Webb and Dr. M. A. Bodron, Jr. for their valuable suggestions, and to Mrs. Aline Riley for her help in obtaining the charts.

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DIAGNOSIS OF ADRENAL TUMORS

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In recent years the physiology of the adrenal glands has been the subject of considerable study. As a result, interest has been renewed in the role of the adrenals in surgery and improvements have been made in the diagnosis and treatment of adrenal tumors. It is the diagnostic aspects of this problem with which this paper is concerned.

In order to approach the diagnosis of adrenal tumors in an intelligent manner, one must be aware of the types of adrenal tumors that can occur. These are listed in the classification of adrenal tumors in Table 1.

TABLE 1
CLASSIFICATION OF ADRENAL TUMORS

I.	Tumors of the Cortex
	A. Hyperfunctioning tumors
	B. Nonfunctioning tumors
II.	Tumors of the Medulla
	A. Functioning tumors
	1. Pheochromocytoma
	B. Nonfunctioning tumors
	1. Neuroblastoma
	2. Ganglioneuroma

TUMORS OF THE ADRENAL CORTEX

To make a diagnosis of adrenal tumor, one must be aware of the varied clinical manifestations of the different types of tumors. *The nonfuctioning cortical tumors* give signs and symptoms of tumor only, such as mass, pain, pressure symptoms, or metastases. These tumors are usually much larger than the functioning tumors at the time of diagnosis. This is due to the fact that there are no endocrine symptoms to call early attention to the possibility of a tumor.

The hyperfunctioning tumors of the adrenal cortex have frequently been discussed in the past with reference to "the adrenal cortical syndrome." It is now ap-

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parent that there is no single syndrome which is characteristic of adrenal cortical hyperfunction. The symptoms which may accompany tumors of the adrenal cortex have been divided by Kepler and his associates [5] into those dependent on age and sex and those which are independent of age and sex. The former category includes homologous sexual and somatic precocity in boys, sexual and somatic precocity in girls (usually heterologous), feminization of men and various degrees of virilism in women. The signs and symptoms, independent of age and sex, include altered habitus (facial and abdominal obesity, kyphosis, and thin arms and legs), purplish striae, hypertension, osteoporosis, diabetes, acne, polycythemia, ecchymosis, fatigue, and muscular atrophy.

Any combination of these symptoms can occur so that the clinical pictures with hyperfunction of the adrenal cortex may be extremely varied. Kenyon [4] has noted the following types of clinical syndrome. (1) The adrenogenital syndrome. This term may properly be applied in cases in which changes in the direction of increased masculinity dominate the clinical picture. (2) Cushing's syndrome. This refers to the clinical picture described by Cushing and not specifically to the pathologic basis of the syndrome. In the past it was thought that Cushing's syndrome was always associated with a basophilic tumor of the anterior lobe of the pituitary gland. Experience has shown that this syndrome may occur in the absence of pituitary tumor but is probably always associated with hyperfunction of the adrenal cortex. (3) Mixed clinical pictures, including features of the first two. (4) Type characterized by a single or isolated endocrine manifestation (diabetes or amenorrhea). (5) Feminizing syndromes—feminization of men or homologous sexual precocity in girls.

There are a number of cases in which symptoms will not fit into any of the above categories because the clinical picture is incomplete or confused and these will be difficult to classify accurately.

TUMORS OF THE ADRENAL MEDULLA

Pheochromocytoma, chromaffinoma, and paraganglioma are the names which have been used to designate the *functioning tumor of the adrenal medulla.* These tumors produce their clinical picture by the outpouring of an epinephrine substance which causes hypertension. Consequently the symptoms of these patients are primarily those of hypertension. In the classical picture, the hypertension is paroxysmal, may come on suddenly associated with striking, severe symptoms and the patient may be entirely well between attacks. On the other hand, in one-third of the cases the hypertension is usually sustained and the patient will have the symptoms of essential hypertension. Among these are headache, palpitation, vomiting, sweating, dyspnea, weakness, pallor, dizziness, substernal pain, failing vision and so forth. In those patients with paroxysmal symptoms the interval between attacks may vary from minutes to months. The attacks may be initiated spontaneously or may be precipitated by external pressure or by assumption of a particular position. Objective findings during an attack may include anxiety, pale, cool skin, dilated pupils, rapid pulse, elevated blood pressure and distended neck veins. The blood pressure elevation may be systolic, diastolic or both. The eye grounds vary from normal to group IV. The heart may or may not be enlarged. The basal metabolic rate is usually elevated and a fasting blood sugar of above 120 is not uncommon during the attacks.

Pheochromocytomas are not common, but it is estimated that they are responsible for one-half to 1 per cent of all deaths due to hypertension each year.[3] They may be found at any age and are reported from 5 months to 72 years, but their greatest incidence is during the fifth decade.[3] There is some indication of a familial tendency with 3 bilateral cases reported in siblings.[3] There has also seemed to be some relationship to gallbladder disease because in 1 series of 50 patients with pheochromocytoma, 7 had pathologic gallbladders.[6] Pheochromocytomas most commonly occur in

the adrenal medulla but may occur anywhere chromaffin tissue is found. They have been called the 10 per cent tumors—approximately 10 per cent are bilateral, 10 per cent are located in extra-adrenal areas and 10 per cent are malignant.

One must remember these tumors to make the diagnosis. Suspicion should be aroused in paroxysmal hypertension, sustained hypertension of short duration (especially with superimposed paroxysms, excessive sweating, palpitation or tachycardia, episodes of hyperthermia, hypermetabolism, or alteration of the carbohydrate metabolism), hypertension in children, excessive systemic response to histamine when given for gastric analysis and unusual blood pressure response as during anesthetic induction. More specific diagnostic aids will be discussed below.

Nonfunctioning tumors of the adrenal medulla are of 2 types — neuroblastoma and ganglioneuroma. The latter may arise from mature sympathetic ganglion cells anywhere, but in all locations these tumors are benign and cause only symptoms due to their location. These occur most often in children or young adults. The neuroblastoma of the adrenal arises from the primitive neuroblast and is a highly malignant neoplasm characteristically found in infancy and childhood. It is the second most common abdominal tumor in infancy and childhood. The most common initial complaint is abdominal swelling with or without pain. Pallor, fatigue, weight loss and loss of appetite may be noted. By far the outstanding physical finding is the presence of an abdominal mass. This mass is usually firm, nodular and, although mostly on one side, may spread across the midline. The liver may or may not be enlarged and nodular. These tumors commonly metastasize and the metastases are frequently widespread to the kidneys, orbits, liver, brain and other organs with a predilection for the skeletal system. The location of the metastases is frequently the differentiating point between this tumor and the more common Wilms's tumor, since the latter more commonly spreads early to the lungs.

SPECIFIC DIAGNOSTIC METHODS

The diagnosis of all adrenal tumors must generally be suspected from the history and physical findings or it will not be made. However, these alone are not specific and one must fall back on other diagnostic adjuncts. The more important of these are tests for pheochromocytoma, urinary hormone determinations and roentgenographic examinations. These will be reviewed briefly.

Tests for Pheochromocytoma—There are 2 groups of drugs which are currently being used to help substantiate the diagnosis of pheochromocytoma: the histamine group, representing the provocative tests, and the adrenolytic group. In 1945, Roth and Kvale[9] showed that the intravenous injection of histamine produced attacks similar to spontaneous pheochromocytoma attacks. This has been used as the basis of the histamine test.[7] To be performed properly, it should be preceded by the cold pressor test. In this latter test, after determining the basal blood pressure, the hand is placed in ice water and the blood pressure is checked every thirty seconds for seven minutes. The histamine test is then performed by again determining the basal blood pressure and then injecting .05 mg. of histamine base in .5 ml. of isotonic saline intravenously and checking the blood pressure and pulse every minute for fifteen minutes. A positive test is a response greater than the cold pressor test with a maximum reached at the end of two minutes. The average rise in histamine tests performed by Roth,[7] in patients with pheochromocytoma, has been 104/56. This test finds its greatest usefulness in those patients with paroxysmal hypertension. It is dangerous to use in the patient whose blood pressure is in the hypertensive range (over 170 systolic). Other drugs which have been used in a provocative manner are mecholyl chloride and tetraethylammonium chloride, but neither of these has given as good results as histamine.

The second group of drugs which has

proved of great value in determining the presence of pheochromocytoma is the group of so-called "adrenolytic drugs." These drugs block the effects of the circulating pressor substances and if the hypertension is due to this, the blood pressure is decreased. The 2 drugs of this type which are currently enjoying the greatest usage are regitine and piperoxan. These drugs are used in those patients whose systolic blood pressure is greater than 170. To perform the test, a needle is inserted in a vein and repeated determinations of the blood pressure are made until the pressor effect of the needle puncture has worn off. Five mg. of regitine in 1 ml. of solution is injected instantaneously and the blood pressure is recorded every thirty seconds for ten minutes. A positive result consists of a maximal depressor effect sustained for three or four minutes after the intravenous injection, and this response should exceed 35 mm. systolic and 25 mm. diastolic. At the Mayo Clinic the average fall of 19 patients with proven pheochromocytomas was 75/56.[7] It is important that these patients have no narcotics or sedatives for twenty-four to forty-eight hours prior to the test because this is the greatest cause of false positives. Antihypertensive drugs should be stopped fourteen to sixteen days before the test, because these may produce false negative results.

These tests have been of great help in making the diagnosis of pheochromocytoma but they are not infallible. It is probable that, in the not too distant future, they will be completely replaced by more direct determinations of circulating epinephrine and norepinephrine in the blood or of their excretion products in the urine. Currently values for pressor amines in the blood[6] and catechol amines in the urine[2] are being determined, but these tests are still in their infancy and are not being widely used.

Urinary Hormone Determinations—The urine contains a large number of steroids which are derived from the gonads and the adrenals. The majority of urinary steroids have a keto group at C-17 and are called 17-ketosteroids. Recently, with improvements in clinical tests, corticoids (compounds E and F, the 11-oxycorticoids and desoxycorticoids) have been found and analyzed in the urine.

The neutral 17-ketosteroids come from 2 sources, the testis and adrenal cortex. Interstitial cell tumors of the testis, masculinizing ovarian tumors, some cases of arrhenoblastoma, and most cases of Cushing's syndrome have increased excretion of urinary 17-ketosteroids. (The normal value for men is 14 mg. per twenty-four hours and in women 7 to 10 mg. per twenty-four hours.)

The methods of analysis for urinary 11-oxycorticoids and desoxycorticoids are still difficult and may be too elaborate for routine clinical use. Nevertheless, in Cushing's syndrome these are elevated above the normal values (11-oxycorticoids .01 to .005 mg. per twenty-four hours; desoxycorticosterone .1 to .2 mg. per twenty-four hours).

These values are usually, but not always, increased in cases with hyperfunction of the adrenal cortex. In addition, their determination has been some help in differentiating hyperfunction due to cortical tumor from hyperfunction due to a diffuse cortical hyperplasia. The 17-ketosteroid excretion may be high in both conditions but the higher figures usually indicate tumor. Furthermore, administration of cortisone by suppressing ACTH production tends to drop the 17-ketosteroids in cases of hyperplasia but not in tumor cases.

Roentgenographic Examination — There are several roentgenographic procedures now available to help substantiate a diagnosis of adrenal tumor or to help localize a tumor once a diagnosis is made. A scout film of the abdomen may show calcification, and planograms are helpful and should be utilized. Pyelograms may show abnormal displacement of one kidney by an overlying mass. Obviously the larger the tumor, the more likely are the pyelo-

grams to be helpful. They have been particularly helpful in our experience in the nonfunctioning cortical carcinomas. The smaller tumors usually associated with Cushing's syndrome and the pheochromocytomas are usually difficult to locate by these examinations.

Several years ago perirenal air insufflation was advocated by Cahill [1] to help with this problem, but it was not enthusiastically received and never enjoyed great popularity. This has now been replaced almost entirely by retroperitoneal air studies which have proved to be of some value. This examination is carried out by injecting 500 ml. of air into the presacral space through a spinal needle in the perineum assisted by a finger in the rectum. After the injection, the patient's head is elevated and films are taken up to two hours afterward. This examination has been helpful in localizing small tumors as well as the large ones. Pyelography and air studies may be combined without difficulty if it is felt that further information might be obtained in this manner.

The most recent roentgenographic help in localization of these tumors is found in aortography. Probably the information is more easily obtained through one of the above procedures but additional information can be obtained by translumbar aortograms. A delineation of the blood supply to the kidneys and the adrenals may help determine the presence or absence of a tumor mass. Again, this may be combined with either or both of the studies previously mentioned.

At times the diagnosis of an adrenal tumor may be suspected but the tests may fail to be conclusive. In some of these cases, particularly those which are pheochromocytoma suspects, surgical exploration is indicated as the final diagnostic maneuver.

SUMMARY

A brief classification of adrenal tumors, along with their clinical pictures, has been reviewed. These clinical data, along with certain diagnostic adjuncts such as pharmacologic tests for pheochromocytoma and urinary hormone determinations for Cushing's syndrome, should help one make a definite diagnosis in most cases. Further help in diagnosis or localization of the tumor can be obtained by the use of plain roentgenograms, planograms, intravenous and retrograde pyelograms, retroperitoneal air studies and lumbar aortography. Surgical exploration is occasionally indicated in doubtful cases to establish the diagnosis.

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THE TREATMENT OF OSTEOARTHRITIS WITH PARTICULAR REFERENCE TO THE USE OF PREDNISONE*

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Osteoarthritis, or degenerative joint disease, is one of the most common diseases afflicting mankind.[1, 2] The first pathological changes become apparent in the second decade, and by the sixth decade are almost universally present. However, only about 5 per cent of the population past the age of 50 years have sufficient symptoms to consult a physician. One of the problems confronting students of this disease is why at times it develops in young people, particularly young females, and again why, when it is almost always present in the older age groups, many go through life with practically no symptoms.

Because of its frequency, a thorough understanding of the treatment of osteoarthritis is extremely important. The objectives of treatment are to slow the progression of the disease, preserve joint function and relieve pain and stiffness[3] (Table 1).

TABLE 1
TREATMENT OF OSTEOARTHRITIS

1. Correction of postural deformities
2. Weight reduction
3. Rest
4. Heat—moist, dry, paraffin baths
5. Exercises to strengthen particular muscle groups
6. Drugs for relief of pain and stiffness:
   a) Salicylates
   b) Other analgesics—Propoxyphene
7. Intra-articular steroids—Frequently helpful
8. Oral Prednisone—for a limited period of time.

The most commonly involved joints are the knees, hips, lumbar spine, cervical spine, shoulders, and terminal interphalangeal joints of the hands. Stecher[4] has shown that involvement of the terminal interphalangeal joints may occur alone as a hereditary disease or as an accompaniment of a more widespread involvement. These Heberden's nodes are frequently more unsightly than painful, and may require no treatment, and pain, if present initially, may subside within a few weeks.

REDUCTION OF WORK LOAD OF INVOLVED JOINTS

Since the knees, hips, lumbar spine, and in a sense, the cervical spine are weight-bearing joints, and since repeated wear and tear produce trauma which hastens progression of this disease, everything possible should be done to reduce the work load of the involved joints. At times postural deformities, such as shortening of one leg, flat feet, residuals of poliomyelitis, and curvatures of the spine, add to the joint load. When possible, they should be corrected, preferably before the onset of symptoms or at least before extensive progression of the arthritic process. Involvement of the knees is a frequent presenting symptom, and in our experience is especially common in obese women. Although we all know the difficulties encountered in effecting an adequate weight reduction, these patients should be advised as to the consequences of continuing obesity, and a proper diet program advocated. Some patients have the idea that the proper thing to do is to "work out the pain and stiffness," and undertake strenuous exercise programs which actually hasten the progression of the disease. They should be advised that while it is usually helpful to move joints through a full range of motion several times daily, extensive exercises may be harmful. When indicated, they should be used with the idea of strengthening a particular muscle group, such as the quadriceps muscles, and should be done in such a manner as to minimize trauma to the already worn joints.

HEAT

The application of heat to the involved joints in the form of hot soaks, heating pads, infra-red lamps, paraffin baths, and so forth, produces an increase in the blood supply to the area and is often helpful.[5]

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A method that can be used in the home two to three times daily is generally preferable to less frequent office treatment. The use of hot soaks for the hands is helpful. For involvement of the knees, a hot tub bath provides symptomatic relief. However, if involvement is more pronounced in the lumbar or cervical spine the use of either a simple heating pad or infra-red lamp is more practical.

In the use of drug therapy the objectives of treatment should be kept in mind. The patient should be warned that even though he may obtain relatively complete relief from his pain, he should continue to avoid any undue strain to the involved joints, and should not use the drugs merely to permit him to do things that he could not do otherwise. If he abuses his joints it is quite likely that he will get along fairly well for a while but will pay for it later with increasing disability.

INTRA-ARTICULAR INJECTIONS

When there is involvement of only a few joints the intra-articular use of one of the four currently available corticosteroids may provide dramatic relief, and although the duration of effect of these medications is certainly less than two weeks, pain is relieved at times for a period of many months.

The intra-articular preparations that are currently available are hydrocortisone, hydrocortisone tertiary butyl acetate, prednisolone and prednisolone tertiary butyl acetate. While all of these are therapeutically effective, in our experience hydrocortisone tertiary butyl acetate seems to be effective over a longer period than hydrocortisone or prednisolone. Theoretically, the palliative effect of prednisolone TBA might be expected to equal that of hydrocortisone, and to exceed it, milligram for milligram in potency. However, it has not been available long enough for a thorough evaluation.

In general, the technique of intra-articular injection is relatively simple in all of the peripheral joints except the hips. The systemic effects of the steroids when used intra-articularly are minimal and there are no contraindications to repeating the injections at fairly frequent intervals. In an occasional patient marked pain for about twelve to twenty-four hours may follow injection, but it then abates and does not lessen the beneficial result.

ANALGESIC AGENTS

As analgesic agents, the salicylates remain in the forefront because of their reliability and minimal cost. If there is no gastric intolerance, aspirin, in a dose of 0.6 gm. to 1 gm. four times daily is generally effective. The combination of paraminobenzoic acid, ascorbic acid, or colchicine adds little to the effect of aspirin but does increase its cost. If uncoated aspirin tablets cause gastric distress, one may use either enteric-coated aspirin or buffered aspirin, such as Ascriptin, which is a combination of aspirin and Maalox, or enteric-coated sodium salicylates if there is no contraindication because of the sodium ion.

When the proper use of rest and salicylates fails to give adequate relief or in the occasional patient who cannot take salicylates, the use of other analgesic agents may be considered. For the past year we have been evaluating a new synthetic analgesic, D-Propoxyphene which is marketed under the trade name of Darvon.* In general, its therapeutic effect approaches that of codeine. Studies to date show no addicting properties and because of that it is not classified as a narcotic. It can be used either alone or in combination with aspirin, and promises to be a worthwhile addition to the therapeutic armamentarium.

PREDNISONE

In a study which we[6] recently completed on the comparative value of prednisone, 5 mg., four times daily, aspirin, 0.6 gm. four times daily and a placebo in osteoarthritis, 78.2 per cent had a satisfactory response to prednisone, 65.2 per cent to aspirin, and 40 per cent to a placebo. The response to the placebo was not expected, but it emphasizes the advantage of using adequate controls in the

* Eli Lilly and Company, Indianapolis, Indiana.

study of a chronic disease such as osteoarthritis. The response to aspirin was better and prednisone was still more effective.

There have been very few studies on the effect of the adrenal steroids when administered parenterally for osteoarthritis and certainly not every patient should be given prednisone or one of the other steroids.[7-11] While their anti-inflammatory effect is desirable and probably responsible for their therapeutic usefulness, undesirable systemic effects such as sodium and chloride retention, an increased incidence of peptic ulceration, and increased protein catabolism have limited the usefulness of the adrenal steroids.

Prednisone and prednisolone possess one advantage over the other steroids in that they do not produce the degree of sodium and chloride retention and potassium depletion that is such a problem with the other preparations. However, their therapeutic effect is no greater and other side effects may occur.

In the treatment of osteoarthritis, one must consider that it is a chronic disease and that the anatomical joint changes are permanent. This limits the degree of improvement that can be expected. However, when the arthritic process is relatively mild, it may be satisfactorily controlled by limitation of activities, physical therapy, aspirin, or one of the other salicylates, and possibly one of the intra-articular steroids. Ordinarily, all of these measures should be tried before considering the use of prednisone or one of the other steroids orally. However, the course of the disease is variable and at times exacerbations occur and it is a problem to give the patient adequate relief. In such instances, one may be justified in considering the use of prednisone for a short period of time. After one or two weeks of therapy the symptoms may subside and it will then be possible to revert to the more conservative measures outlined above for long term management.

In our study, there were no serious complications from the use of prednisone, but none of the patients received this drug for more than one month.

SURGERY

The surgical approach is generally reserved for those who fail to respond to a medical regime, and is limited primarily to knee and hip involvement.[12] In treatment of hip involvement, various types of prostheses, arthrodesis, and denervation of the joint capsule have been advocated. However, none of these is entirely satisfactory. For osteoarthritis of the knees, some orthopedists advocate removing the patella [13] and cleaning up the frayed cartilage and removing any loose bodies. Such procedures necessitate a long period of convalescence and patients are frequently reluctant to accept them.

SUMMARY

In summary, the objectives of treatment are to limit the progression of the disease, preserve joint function, and relieve pain and stiffness. This involves a comprehensive treatment program including the use of rest, heat, and properly selected exercises and salicylates. In some instances, intra-articular steroids are beneficial, and they are also effective when given parenterally. Because of their side effects, their long term parenteral use in osteoarthritis is not advocated, but they may be used for short periods of time if more acute symptoms occur. In the use of drug therapy, it should be remembered that the desired effects of treatment are to delay progress of the disease as well as to relieve joint pain.

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EYE SIGNS OF HEAD INJURY *

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Proper evaluation of the eye signs of head injury is of twofold importance: First, at least one of the signs enables us to determine those cases which must be referred to our neurosurgical colleagues immediately; second, the consideration of the eye signs helps us in determining prognosis and disability from head injury.

I. LIDS

A. N VII PARALYSIS

As we see the head injury patient lying in bed, we will notice whether he is able to close both eyes. With a nuclear to peripheral type of facial nerve (N.VII) injury, the lids of that eye cannot be closed, because of interference of nerve supply to the orbicularis oculi. Also, the ipsilateral labial commissure cannot be retracted to "show the teeth" on that side. Most of these traumatic paralyses are peripheral, and are caused by fracture from the temporal region, crossing the middle ear and the petrous pyramid.[1] The facial paralyses which occur immediately after injury are usually complete and peripheral. If they are nuclear, the VI nerve to the lateral rectus muscle of the eye is also usually involved, because of the proximity of the fibers, as is seen by an examination of a lateral drawing of the brain stem.

If the facial nerve lesion is supranuclear, then the patient can close the eyes, because of the bilateral upper motor neuron (corticobulbar) supply to the upper part of the facial nerve nucleus. However, there will be flattening of the nasolabial fold on the side opposite the lesion, and the labial commissure cannot be voluntarily retracted, because of only crossed corticobulbar or upper motor neuron fibers to the portion of the facial nucleus that supplies the lower facial muscles.

In a series of 1550 cases of head injury, Turner found 20 per cent showed facial nerve injury. (It is therefore important to keep in mind methods of protecting the thus exposed cornea: lubrication with ointment; 1 per cent methyl cellulose; an airtight shield; or sewing the lids together.)

B. PTOSIS

If the patient exhibits a drooping or ptosis of an eyelid, we must differentiate third nerve injury, from Horner's syndrome.

In third nerve injury, the powerful levator palpebrae muscle is paralyzed, and allows practically a complete ptosis on that side of the lesion; whereas in Horner's syndrome, from interference with the sympathetic nerve supply, the small band of smooth muscle (Muller's allows only a millimeter or so of ptosis. Associated with the small degree of ptosis are miosis or small pupil (from interference with the radial dilator fibers of the iris), anhydrosis, and (relative) enophthalmos.

Differentiation of the miosis will be considered later under discussion of pupil.

C. DIFFERENTIATION "BLACK EYE" AND FRACTURE OF SKULL

Another point of interest about the lids is the differentiation of the common "black eye" from fracture of the base of the skull, with its hemorrhage seeping forward into the lids.

The septum orbitale is the "fire wall of the orbit," presenting a definite obstacle or barrier to inflammatory or neoplastic diseases arising on either side of it, and pre-

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vents hemorrhagic extravasations from progressing farther anteriorly, from their point of origin posteriorly. Thus, this thin membrane of connective and elastic tissue, attached to the thickened line of periosteum around the orbital rim, prevents hemorrhage from seeping into the superficial tissues of the lid. Therefore, in fracture of the base of the skull, hemorrhages are limited to the orbital margins, but in "black eye" the hemorrhages are not limited.

In the "black eye", the conjunctiva is immediately [1] red, the conjunctival hemorrhage moves, and shows a posterior limit to the extravasation, and the superior tarsus is usually the first to show the marked redness. In fracture of the skull base, however, the conjunctiva becomes purplish after several days, the hemorrhage on the eyeball does not move, and does not show a posterior limit as the handle of the fan is toward the iris, and the lid discoloration first shows in the midlower lid. In black eye there is relatively more edema than blood, whereas in fracture of the base the edema and blood correspond.

II. CONDITION OF PUPILS

Of utmost importance is the condition of the pupils in the head injury patient.

If the pupil is dilated on one side, it may be of grave importance from injury to the brain and the parasympathetic nerve supply to the constrictor of the pupil, or it may be dilated from other causes.

Of great etiologic significance in the dilated pupil from brain injury is the tentorial gap, or incisura. This is the space enclosed by the free border of the tentorium cerebelli. The tentorium is the tentlike shelving of dura which separates the cerebellar lobes below from the occipital lobes above. The attached border begins at the occipital protuberance, includes the lateral sinus as it runs forward, then the superior petrosal sinuses, where the attached border swings inward along the superior angle of the temporal bone, to be attached to the posterior clinoid process.[2] The *free* border of the tentorium, with which we are especially concerned, begins at its forward attachment to the *anterior* clinoid process, and encloses the tentorial hiatus or gap as it passes backward to encircle the midbrain.

As the oculomotor nerve fibers leave the midbrain, they course through the crotch of the fork [3] made by the superior cerebellar artery below, and the posterior cerebral artery above, as they are given off the basilar artery. The nerve passes forward, through the interpeduncular cistern, and to the superior portion of the cavernous sinus, which it then enters.

The posterior cerebral arteries, which are the paired terminal branches of the basilar artery, run forward and laterally, in the tentorial gap, and then backward around the cerebral peduncles of the midbrain, coursing between the peduncles, and the uncus of the temporal lobe. These posterior cerebral arteries then pass over the free border of the tentorium, to course above the tentorium, to the area they supply. Two important areas supplied are the striate or visual area of the cortex of the occipital lobe, and part of the oculomotor nuclei.

Postmortem examinations of normal brains show that the uncus, or hook-like portion of the hippocampal gyrus of the temporal lobe, project as much as 5 mm. below the free margin of the tentorium, with variable degrees of grooving.

However, when there is increased pressure above the tentorium, the hippocampal gyrus is forced as much as one or two centimeters below the tentorial margin, with deeper grooving.[4] This herniation is caused by rapidly increasing supratentorial pressure, which in turn may be caused by: rapidly expanding tumors (such as the one reported by Echols [5]); abscesses; cerebral edema from injury; cardiovascular and renal conditions; aneurysms, and especially, hemorrhages.

With the increasing supratentorial pressure from epidural and subdural hemorrhages, as the uncinate gyrus and brainstem are forced downward, several important changes occur: (a) The oculomotor nerve is at first compressed from above by the downward pressing temporal lobe uncus.[6 8] The more superiorly placed (and possibly more sensitive) pupilloconstrictor fibers are first affected, before the fibers to the levator and extraocular muscles. An

initial miosis may or may not result from irritation, but this rapidly gives way, even within a few minutes, to the paralytic mydriasis, within one to twelve hours. This mydriasis may also be caused by aneurysms of the adjacent vessels. (b) The oculomotor nerve then becomes angulated acutely by the posterior cerebral arteries, and stretched, as the pons becomes displaced downward by the herniating cerebral mass. The basilar artery, which is tethered to the pons by short branches, moves distally with the pons and the elongation of the mesencephalon, carrying with it its origin of the posterior cerebral artery. Therefore, each posterior cerebral artery must ascend more acutely to reach the tentorial edge, and therefore drags more on the superior surface of each oculomotor nerve. (c) The posterior cerebral arteries are forced [1] against the sharp tentorial rim, thus giving anoxia and ischemia and edema of the occipital lobe. A homonymous hemianopsia results. These field defects and pupillary changes are reversible if the pressure is relieved. However, actual infarction of the artery occurs with prolonged pressure on the vessel, and thus destruction of the occipital cortex results.

Further compression and dislocation of the midbrain cause actual closure of the aqueduct of Sylvius. Edema and hemorrhages in the brain stem so embarrass the vital centers that death results.

In addition to brain swelling with herniation of the temporal lobe, other causes of dilated pupil to be considered are: physiological, but here the pupil reacts normally; direct injury to the eye, but the pupil is often irregular; unilateral blindness, but there is still reaction to indirect light; cycloplegia; tonic pupil of Adie, but there is miosis with prolonged convergence, and mecholyl causes narrowing; and quadrigeminal plate lesions (usually tumors).

As previously considered with Horner's syndrome, a small pupil may make the opposite pupil appear larger. The larger pupil will react well if it be physiologic, but not if from paralysis of the pupilloconstrictor. Consideration of small pupil makes us consider one that is congenitally so, either physiologic or by absence of dilator fibers of the iris. Acquired miosis may be from miotics, old inflammatory residue, irritative from meningitis or pontine hemorrhages, or the sympathetic paresis of Horner's syndrome.

If a patient is seen immediately after an injury, and has a dilated and fixed pupil on one side, then it is usually due to a laceration of the third nerve or its nucleus, and there is usually a complete ptosis as part of a complete nerve injury. However, a dilation occurring about an hour or more later is usually without ptosis early, and is due to hemorrhage.

III. CORNEAL REFLEX

The corneal reflex may be tested by touching the cornea with a wisp of cotton. Of course the eyelids will close if the reflex pathways from afferent branches of the ophthalmic division of NV are intact, along with the central connections, and the efferent pathway through the facial nerve nucleus and the peripheral NVII, to the orbicularis oculi.

There has been some debate as to whether the cornea itself has its center for touch in the mesencephalic nucleus of NV as do the lids, and pain and temperature in the spinal tract and nucleus of NV, as do also the lids. However, evidence presented by Cogan indicates that *all* sensations of the cornea, including touch, are centered in the spinal nucleus.

IV. CONJUGATE DEVIATION

In general, even in the unconscious patient, determine if possible whether the eyes seem to rove well in all directions, or whether there is definite limitation in one direction.

If there be conjugate deviation of the eyes to one side, then brain involvement is indicated, but the exact site can be one of several places.

Stimulation of the voluntary eye motor center of the frontal lobe (posterior part of the middle frontal convolution) incites conjugate deviation to the side opposite the lesion, and opening and closing of the lids. Stimulation of the occipital visual areas of the cortex (especially the angular gyrus 39, and the peristriate area 19 bordering the anterior occipital lobe), and the association

paths between them and the eye motor area of the frontal lobe, produce conjugate but usually transient, deviation of the eyes to the side opposite the lesion; whereas the afore-mentioned lesions of the frontal area are a little longer in duration. In the frontal eye motor area, a lesion may also involve the adjacent area for head movement, located above, or the writing area situated posteriorly in the precentral area of the frontal lobe, or the motor speech area of Broca which lies just below the eye motor area. (Thus, conjugate deviation may be associated with motor agraphia and aphasia, as well as a deviation of the head).

Fibers from the voluntary eye motor area as corticobulbar or aberrant pyramidal fibers, and pass downward through the corona radiata with fibers from other motor areas. These corticobulbar fibers pass through the genu, or knee, of the internal capsule, and descend as part of the cerebral peduncle into the brain stem. These fibers to the eye motor nuclei pass chiefly to the opposite side, but the exact site of crossing is debatable.

This explains why stimulating lesions of the occipital visual or the frontal eye motor areas, or the knee of the internal capsule, or the cerebral peduncle, give conjugate deviation of the eyes to the opposite side, and possibly to the same side if the irritative lesion be in the pons; whereas in destructive lesions of the upper motor neuron, the conjugate deviation is to the same side as the lesion, and probably to the opposite side if the destructive lesion be in the pons. Lesions of the pons may also implicate the facial nucleus or nerve, and even the pyramidal tract and medial fillet to give contralateral hemiplegia and hemianesthesia of the body.

We feel that there is great difficulty in a rapidly changing clinical course, in determining whether the lesion is changing from irritative to destructive, or whether new areas are becoming involved. Therefore, we feel that the presence of conjugate deviation of the eyes is of value in denoting injury to the brain, but do not feel that it is of great localizing value.

V. PARALYSIS OF EXTRAOCULAR MUSCLES

All the nerves to the extraocular muscles may be paralyzed by a lesion at the apex of the orbit, where nerves III, IV, and VI enter the orbit through the superior orbital fissure as so well shown by Fralick, McCotter and Henderson.[9] Ptosis is apt to be present, as part of the paralysis of the other elements of the third nerve. However, Walsh [10] states that this is an extremely rare occurrence. Pfeiffer studied a large series of skulls in the Army Medical Museum, and found involvement of the optic canal to be very rare.

Paralyses of various nerves of the extraocular muscles may occur from subarachnoid hemorrhages, which are quite common at the base of the brain. The nerves are involved by hemorrhages into the interpeduncular and chiasmatic cisterns. The III nerve is especially vulnerable here, but the trochlear nerve is only rarely involved.

Although Lyle states that the VI nerve is more frequently involved in injury than the III nerve, Turner only found each of the two nerves involved in 6 per cent of the 1550 cases of head injury, while the VII nerve was involved in 20 per cent. Although the VI nerve is especially vulnerable to injury as it ascends the brain stem and turns forward through Dorello's canal, over the apex of the temporal bone, it may also show weakness from increased intracranial pressure, and is not of much localizing value. The cases of VI nerve injury from increased intracranial pressure are usually delayed.

VI. NYSTAGMUS

Nystagmus may be noted in head injury cases, but is not of great localizing value. Although it has been ascribed to labyrinthine injuries, it can result from injury to the central connections of the vestibular nerve in the brain stem, or even to secondary vestibular connections, and Rucker's excellent discussion [11] of nystagmus emphasizes that nystagmus is not of good localizing value. However, Lindsay [12] has cautioned that in the late head injury cases, elicitation of positional nystagmus by postural tests may be the only and valuable

objective sign of the subjective complaint of vertigo.

VII. OPTIC NERVE

A. VISION AND FIELDS

Thus far we have considered eye signs of involvement of the third, fourth, fifth, sixth and seventh cranial, and the sympathetic nerves, in the head injury case. Now let us consider the second cranial nerve.

If the patient be conscious, it is of great importance to early assess the patient's vision, not only for clinical, but also before the compensible aspects of the case loom too large. If it is impractical to use a visual acuity chart, then it is at least valuable and easy to determine ability to count fingers at specified distances.

Although detailed perimetric studies of the visual field are usually not feasible in the acute head trauma case, confrontation visual fields at least detect hemianopsia. Blind spots will be considered later.

B. PAPILLEDEMA

Determination of presence of papilledema is important. Although many authors state that papilledema usually does not develop for as long as three to seven days after acute head trauma, it has been observed in as little as twenty-four hours.

It is convenient to divide the findings of papilledema into three stages. In the early stages (first few days) there may be but few findings, such as increased redness of the disc, blurring of margins, movement of small capillaries on and near the disc with parallax, filling of the physiologic cup, development of gray streaks along the emergent vessels, and engorgement of the retinal veins. (Walsh [10] finds this latter development of considerable importance in the early stage). In the later or second stage (seven to ten days) : the entire disc outline becomes blurred, the physiologic cup becomes completely filled, and there is measurable swelling of the disc (2D). In the more advanced or third stage, about ten days onward, the disc is red like the surrounding retina, the swelling has increased from 5 to 9 diopters, the edges of the disc overhang the retina mushroom-like, the engorgement of the retinal veins is associated with hemorrhage, and there is a macular fan toward the disc.

From the above, it is seen that progression toward papilledema may be gradual, so it is important that we record in detail, from each examination, all those characteristics that may be of value in detecting the progressive changes leading to a diagnosis of papilledema.

Disc characteristics may be recorded by using Elschnig's types (Bothman) [13], or we may follow a recording system somewhat as suggested by Berens.[14] Disc characteristics should be recorded as to color, borders, presence and degree of physiologic depression, and as to whether the gray stippling of the lamina cribrosa is markedly distinct in the bottom of the physiologic depression, distinct, indistinct or not visible. Presence or absence of tufts of grayish tissue about the emergent vessels should be noted, as should dilatation of the retinal veins, and the presence of hemorrhages and exudates.

A number of conditions must be differentiated from papilledema.[15] Of the four usually considered developmental and congenital conditions, pseudopapilledema presents the discs swollen and elevated, but not containing edematous tissue that disturbs retinal physiology, and although the veins may be full and tortuous, they exhibit more graceful curves than do the vessels in papilledema. Pseudopapilledema is usually associated with hypermetropia. Hyaline bodies or drusen of the optic nerve head, a second developmental condition, are easily identified if the coin-like bodies are readily visible if they are near the surface of the disc, but differentiation from papilledema may be very difficult if the yellowish amorphous material is buried beneath the surface, and we should not hesitate to call on our colleagues for the findings of any previous examinations. Hemorrhages are not present with hyaline bodies. Myopic changes about the disc are a third developmental condition in differential diagnosis. However, there are no hemorrhages or venous congestion, and no enlargement of the blind spot unless there is a scleral crescent or posterior staphyloma. Medullated nerve fibers are a fourth congenital condition, whose characteristic whitish brush-like striations, usually coming off the upper and

lower borders of the disc, may be confused with papilledema.

Of the inflammatory conditions, optic neuritis is often most difficult to differentiate from papilledema by fundus picture alone. Both conditions show edema, blurring of borders, congestion, and hemorrhages and exudates. However, optic neuritis is usually unilateral, presents marked loss of central acuity, tenderness and pain on motion of the eyeball (because of intimacy of the optic nerve sheath and the muscle cone superonasally), loss of vision for red, and cecocentral field defects rather than enlargement of the blindspot. Chamlin and Davidoff state that the normal blindspot is 5.5 degrees to 7.5 degrees wide, and 7.5 to 9.5 degrees long, as determined by 2 mm. white spherical test object at 2 meters distance. In papilledema the blindspot enlarges, and in their case of acoustic nerve tumor, an increase in size of the blindspot was noted at least three weeks before the appearance of definite ophthalmoscopic evidence of papilledema. These authors state that they have never seen papilledema with a completely normal blind spot. However, Payne [16] states that he cannot confirm the great value assigned by the authors to enlargement of the blindspot in incipient papilledema. Walsh [10] and King [17] quote Hill that if blindspots continue to show enlargement twelve hours after head trauma, then edema of the brain is present, whether or not there are ophthalmoscopically visible changes.

Choroiditis juxtapapillaris (Jensen) is an inflammatory condition of the choroid and retina near the disc, which is usually unilateral, eventually shows pigment migration there, and field changes of blindspot enlargement, cecocentral defect, or nerve fiber bundle defect.

With vascular changes, papilledema may be suggested, or actually present, in hypertensive neuroretinopathy, peripapillary vascular sclerosis, and thrombosis of the central retinal vein. However, the vascular changes and hemorrhages are usually seen peripherally, also.

VIII. ARTERIOVENOUS FISTULA

Arteriovenous fistula may develop in the cavernous sinus, from injury on the side of the head or about the lateral wall of the orbit. The etiologic trauma may be fairly mild, and not associated with loss of consciousness, but there is often a fracture through the cavernous sinus. The patient hears a buzzing noise, and the physician hears a bruit by placing a stethoscope over the eye (although it might possibly be on the side opposite the lesion, presumably because of abnormal communication between the cavernous sinuses.) There is engorgement of the ocular vessels, and a pulsating exophthalmos. There may be incomplete extraocular muscle palsies, or late papilledema. About 10 per cent of the cases are bilateral.

SUMMARY

Numerous eye signs of head injury have been discussed. Some of these signs are of value in indicating the degree of severity of the injury, but are not of great localizing value. The importance of the dilated pupil is stressed as a danger sign of herniation of the hippocampal gyrus of the temporal lobe. Also stressed is the importance of detailed recording of fundus characteristics required in the diagnosis of papilledema.

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DISCUSSION

Dr. George M. Haik (New Orleans): If I were to select the most important point which Dr. Harms has made in this excellent paper dealing with the eye signs associated with head injuries, I think my choice would be his insistence on the cooperation necessary between ophthalmologists and neurosurgeons in this type of trauma if the best interests of the patient are to be served. There has always been a theoretical appreciation of the necessity for such cooperation. Practically, however, it has sometimes been less than complete.

Combined ophthalmologic and neurosurgical care of battle-incurred head injuries saved both sight and lives during the second World War and during the Korean conflict. It is important that such combined care be the practice in civilian life, for two reasons. The first is that in this highly mechanized age we are managing to kill thousands of persons each year in automobile and other accidents and are injuring millions of others. Head injuries are a large component of the total. The second reason is that this is an age in which all of us live in the shadow of a possible mass disaster, in which, if it comes, there will be thousands of head injuries to be cared for.

Dr. Harms' paper is an orderly consideration of the diagnostic, therapeutic and prognostic significance of eye signs in head injuries, beginning with the state of the eyelids and ending with the possible damage to structures of the internal eye. The limited time allowed him for his presentation scarcely permitted him to hint at what his paper contains. As one who has had the privilege of reading it in full, I assure you that it will repay not one reading but several.

I would like to emphasize one or two points which impressed me as I read this paper. The first is the sound common sense of testing vision in conscious patients, not only for the clinical value of the observation but, as Dr. Harms put it bluntly, before the compensation aspects of the case loom too large. He is quite correct. We live in a material world, and these aspects cannot be ignored from the standpoint of either the injured man or the employer or insurance company responsible for compensating him for his injury. It may not be practical at the time of injury to use a visual acuity chart but it is both possible and useful to determine the ability to count fingers at a specified distance. Also, although detailed perimetric studies of the visual fields are usually not practical, confrontation fields provide a simple method of detecting hemaniopsia, while simple questioning will determine the existence of such complaints as double vision.

Dr. Harms also emphasizes the importance of tracing and recording the development of papilledema. As he says, the progression may be so gradual that without careful examination and equally careful recording, the slight but highly significant changes in the fundus may be overlooked until they are far advanced. He has provided a comprehensive list of the signs which should be sought for and recorded.

Finally, Dr. Harms has pointed out that while in a severe head injury, which is potentially lethal, most of the attention must be directed toward the injury, it takes little additional time and effort to protect the eye. When the facial nerve, as he says, is injured in perhaps 20 per cent of all cases, the cornea is likely to be exposed in a certain proportion of these. If so, it should be protected by some simple method, including, if necessary, sewing the lids together.

This is a paper in which there is really nothing left to discuss. In his comprehensive presentation, Dr. Harms has said it all already.

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TREATMENT OF TUBERCULOSIS IN MAN

The treatment of pulmonary tuberculosis in man, so far as effective drugs are concerned, began in 1947 when streptomycin was made available for clinical use. Following this, after a brief period, two other drugs—isoniazid and aminosalicylic acid—also became available.

In the ten succeeding years, the treatment of pulmonary tuberculosis underwent many changes. Shortly after these three drugs came into use cooperative studies in the chemotherapy of tuberculosis were undertaken by the Veterans Administration - Armed Forces group. The Council on Drugs of the American Medical Association issued a highly informative report by Raleigh and Steele [1] on the 16th Conference of this group held in February 1957. The observations and findings represented in the report are valuable to the practitioner, upon whom great responsibility for directing various phases of the treatment of tuberculosis now rests. This is important as it is estimated that approximately 56 million Americans are still harboring tubercle bacilli.

Earlier reports from this group showed that the three drugs active in tuberculosis should not be used singly, but always two at a time and that treatment should be continuous for many months. Their comparative efficacy was measured by the incidence of bacteriological conversion by culture, significant improvement by x-ray, and closure of all visible cavities. Judged by these standards, the measurable superiority of isoniazid plus aminosalicylic acid in patients with moderately advanced and far advanced tuberculosis after four, eight, and twelve months of therapy was demonstrated.

However, a definite limit to the absolute efficacy of the three combinations of these three drugs has been shown. Cavity closure was achieved after eight months of therapy in less than 40 per cent, and after twelve months of therapy in only about 50 per cent. The chances of closure were greater in the smaller cavities, and best in those below 2 cm. in diameter. Cavities persisting through twelve months of therapy rarely closed without resort to new drugs, or surgery, or both. Among patients whose sputum and gastric cultures had become consistently negative, even though the cavity persisted, continued treatment resulted in a closure in only 26

[1] Raleigh, James W., and Steele, John D.: Recent developments in the treatment of tuberculosis in man, J.A.M.A. 106:921 (Feb. 22) 1958.

per cent, and at the same time, 10 per cent of the group became worse.

It was felt that at the end of eight or twelve months continued treatment was likely to result in disappointment, and that at this time change of drugs or surgical intervention was to be considered. It was reported that among the newer drugs in use 500 mg. cycloserine with 300 mg. of isoniazid on small numbers of cases has been observed to be equivalent in effectiveness to isoniazid with aminosalicylic acid. Toxic effects were reported from the use of larger doses of cycloserine. Pyrazinamide was reported as causing toxic effects on the liver, and also, causing hyperuricemia.

It is also stated that in 30 to 60 per cent of patients isoniazid is converted into a form that is biologically inactive against the tubercle bacillus. This inactivity cannot be corrected by increasing the dose of isoniazid.

If cultural and radiographic evidences are indicative of threatened failure of therapy after eight to twelve months, the prospects of thoracic surgery with a change to a new drug are encouraging. In 5,054 pulmonary resections for tuberculosis in approximately 40 Veterans Administration hospitals, between 1952 and 1956, the surgical mortality was as follows: 15 per cent in 259 pneumonectomies; 3 per cent in 1800 lobectomies; 1 per cent in 2254 segmental resections; and zero in 732 subsegmental resections. The morbidity and mortality were influenced by the extent of the disease, presence or absence of tubercle bacilli in the sputum at the time of operation, resistance of these organisms to the drug in use at the time of operation, and the availability of additional drugs to replace those to which the tubercle bacilli were resistant.

Reports of a small, controlled study as to the effect of liberal ambulation versus bed rest indicated that there was no significant difference in the two study groups with respect to x-ray improvement, achievement of negative sputum cultures, and cavity closure. It was noted, however, that many of the supposedly ambulatory group were not out of bed and ambulatory even when they were asymptomatic.

It seems apparent, therefore, in this report that the efficacy of chemotherapy in tuberculosis must be supplemented in unfavorable cases by thoracic surgery, and that this should be considered after eight to twelve months of consistent treatment when cavities persist.

With effective means of treating pulmonary tuberculosis such as these, the ultimate control of the disease becomes more than ever a matter of case-finding.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.



H. ASHTON THOMAS, M.D.
President
1957 - 1958

Dr. Ashton Thomas, our President during the past year, has had a very busy administration and has been ever watchful for any evidence of possible problems which might be detrimental to organized medicine, and has supported all measures which were for the good of our Society and its members. Dr. Thomas has conducted the affairs of the Society, always keeping in mind what was best for its members and the Society. While Dr. Thomas has had individual ideas regarding the problems presented for consideration, he has always welcomed suggestions and advice from other members of the Society.

Our President represented the profession at many parish, district and national organizations and has always exerted every effort to create good public relations between the lay public and our profession.

Dr. Thomas was born in New Orleans on July 9, 1903, and received his education in the public schools of New Orleans. His premedical education was at Tulane and after teaching in the Department of Anatomy at Tulane, 1925-1927, reentered the Medical Department of Tulane and received his M.D. degree in 1929.

After graduation, Dr. Thomas served a one years' internship and his residency in Ear, Nose and Throat at the Charity Hospital, New Orleans, 1930-1933. He entered private practice in 1933, limiting his work to otolaryngology.

Due to a physical disability, Dr. Thomas was rejected for military service in 1941, however, he has served for many years as a member of the Selective Service Commission for Physicians.

Dr. Thomas has been a member of the Faculty of the Louisiana State University School of Medicine since its organization, some twenty-five years ago, and is Clinical Professor, Department of Otolaryngology at this time.

He has served as Chairman of the Council and on many committees of the State Society, and was a charter member of The New Orleans Graduate Medical Assembly. He has been affiliated with Public Health, having served as a member of the New Orleans Board of Health and the Coroner's Commission for many years.

Dr. Thomas is Past-President of the Orleans Parish Medical Society and the Mercy Hospital Staff and is now one of the chief surgeons on the staff of this hospital. He holds fellowship in the American Academy of Otolaryngology and Ophthalmology, and is a charter member of the Board of the American Rhinologic Society. He is a senior visiting surgeon, Charity Hospital of New Orleans, and assistant chief otolaryngologist for the Illinois Central Railroad.

He also enjoys membership in the Or-

leans Parish Medical Society, Louisiana State Medical Society, New Orleans Academy of Otolaryngology, Southern and American Medical Associations, Association of Railway Surgeons, American Rhinologic Society, and the Louisiana-Mississippi Ophthalmological and Otolaryngological Society.

The members of the Louisiana State Medical Society are indebted to Dr. Thomas for his loyal and efficient services during the past year and it is sincerely hoped that he will continue his enthusiastic interest in organized medicine and will always feel free to wisely advise and counsel us.

A REVIEW OF TREATMENT SERVICES FOR ALCOHOLICS IN A SEPARATE WARD OF A LOUISIANA STATE MENTAL HOSPITAL

A twenty-five bed ward for white male alcoholics of East Louisiana State Hospital at Jackson is a pilot program to determine the feasibility of giving individual and group treatment to a screened segment of the estimated 65,000 alcoholics in Louisiana. The treatment services of the separate ward will not only be directed toward the medical aspects of the illness of alcoholism but also the often neglected social aspects. Several factors prompted the undertaking of this constructive approach of separating non-psychotic alcoholics from over 4000 institutional patients with varying degrees of mental complications.

Influencing Factors

Some of the influencing factors toward establishing this separate ward for alcoholics in a mental hospital setting include:

(1) The Louisiana Legislature's recognition that alcoholism should be treated as an illness prompted the State Department of Hospitals to accept alcoholism as a part of the mental health services.

(2) Experience and research have shown that some cases of alcoholism require extensive medical, psychiatric, and social treatment.

(3) Such a setting will afford the opportunities for a defined approach to the patient's emotional structure. Group living of patients who have similar experiences will produce the beginning of an awareness of belonging and a feeling of acceptance.

(4) Throughout Louisiana members of Alcoholics Anonymous not only voiced a favorable opinion on a program of this type, but also expressed a desire to sponsor willing patients in their local AA Groups following their discharge from the alcoholism services of East Louisiana State Hospital.

(5) Several state-wide community educational programs on alcoholism were held in 1957 as a preparatory measure for this new approach. Such programs influenced this extension of services for alcoholics, especially the plan for follow-up services.

(6) A full time professional worker in the field of alcoholism on the Department's Staff to assist in coordinating in-patient and follow-up services was an influencing factor in initial and long range planning.

(7) This program will give additional beds to mental patients in the other two State Mental Hospitals and at the same time give the alcoholic more opportunities for total rehabilitation.

Admission Procedures

Primarily, patients will be admitted to the Alcoholic Ward through legal commitment by one of the 64 parish coroners of the State. Under special circumstances, patients may volunteer for admission without court proceedings.

All white male alcoholics will initially be housed in the separate alcoholic ward for screening purposes. Alcoholics with complications, and psychotics and mental deficients, will not be retained on the separate alcoholism services. An accepted patient will have demonstrated some degree of **positive motivation**, or at least a degree of **potential motivation** to arrest his illness by cooperating with the therapists.

Therapeutic Staff and Procedures

A minimum staff has been selected to be known as "the treatment team"; it will include a medical director, an assistant psychologist, and three male attendants, plus the part-time group to include two institution counselors, a psychiatric social worker, one registered nurse, two chaplains, one steno-clerk and a psychiatrist. In addition, a vocational counselor of the State Vocational Rehabilitation Division will give necessary services, and members of outside Alcoholics Anonymous Groups will conduct a weekly AA meeting on the ward.

No set concepts for therapeutic procedures are prescribed, but some of the defined services give a broad picture of the planned treatment process. Following evaluation of the patient's willingness to cooperate, and diagnosis of the type of alcoholism involved, a course of treatment will be determined. The types of treatment will include physical therapy, psychiatric and psychological evaluation, individual counseling or short term case work, group therapy and a concerted program of Alcoholics Anonymous.

An extensive effort is to be given to treatment on the social level which is aimed not only at the patient but also at the environment in which he lives. Recognizing the obvious limitation of treatment which is carried on solely in an institution, and that such therapy can not be more than a

first and incomplete step in recovery, each willing patient will have an AA sponsor in his community prior to discharge from the hospital. Additional community resources, such as the agencies of Vocational Rehabilitation Division, Employment Security Division, selected State Guidance Centers, and other agencies, will be used to assist the recovering alcoholic in adjusting to his environment.

Pitfalls to Avoid

There are several pitfalls to avoid in starting a specialized treatment program for alcoholics. Experience with special programs for the alcoholic in four of our State General Hospitals, the teachings of the Yale University Center of Alcohol Studies, and the development of this separate ward at East Louisiana State Hospital have pointed out the following indicated pitfalls:

(1) To ignore the community's lack of understanding, and the existing common misconceptions on the nature and extent of alcoholism will work an undue hardship on the success of this type program. As Abraham Lincoln once said, "With public sentiment one can do anything, without it, one can do nothing." The need for community education on alcoholism and its associated problems has to be a continuous function if a program of this type is to be of value to the patient and the environment.

(2) Selection of employees to staff such an alcoholic ward can prove to be one of the program's greatest stumbling blocks for successful services. Each employee must have an understanding of the problems of the alcoholic and the ability to reflect this understanding in a working relationship.

(3) Avoid public conceptions that such an alcoholic ward in a mental hospital is the ideal setting to refer and treat all types of alcoholics. It has been shown not only in Louisiana but also nationwide that a great number of the alcoholic population can be handled and treated in planned programs in general hospitals and out-patient clinics.

—o—

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SOCIAL SECURITY FOOTNOTES

Since Bismarck introduced socialized medicine in Germany three quarters of a century ago, the threat of socialized medicine through the extension of so-called social insurance has been ever-present in Western civilization. One nation after another has succumbed to the drive to extend the compulsory system of taxation called social insurance to finance a vast program of medical and hospital care for taxpayers and nontaxpayers. The history of developments in this field in foreign countries should alert the medical profession to the usual consequence of federal social security program.

The late Robert A. Taft classified the Social Security Act as our greatest single step toward socialism.

Every argument which has ever been used to support social security can be used with equal validity to support socialized medicine by changing a few words. If you ask for the one, prepare to get both. It is planned that way.

Those who sponsor social security regard professionals as a source of income and admit that most of them will never claim any benefits. Professional people are to be the source of funds to pay the "benefits" of others.

To support socialistic practices in regard to retirement funds requires that, for the sake of consistency, socialized medicine also be supported. If one believes that the federal government should

tax everyone to provide an income for each upon retirement or disability, one must also believe that the same government should, with equal propriety, tax everyone to provide medical care for all!

How high will the social security tax go? No one knows. But in South America some countries are paying tax rates as high as 25% of payroll. In France, the tax rate is 35% of much of their payroll and is one of the principle reasons for the failure of the French economy to make a postwar comeback.

PROGRAM
SCIENTIFIC SESSION
LOUISIANA HEART ASSOCIATION

an Affiliate of the American Heart Association

MAJESTIC HOTEL
LAKE CHARLES, LOUISIANA

May 17, 1958

9:00 A. M.

Myocardial Infarction—Emergency Treatment

Harold P. Chastant, M. D., Lafayette, Louisiana

9:30 A. M.

Management of Angina Pectoris

Cyril T. Yancey, M. D., Monroe, Louisiana

10:00 A. M.

Recess

10:15 A. M.

Practical Aspects of the Present Controversies on Etiology of Atherosclerosis.

Francis L. Chamberlain, M. D., San Francisco, California—President-elect, American Heart Association

11:15 A. M.

Panel Discussion: Coronary Disease

Drs. Chamberlain, Chastant, Yancey and Don Chapman, M. D., Houston, Texas

12:15 P. M.

Recess

2:00 P. M.

Use of Drugs in Cardiac Arrhythmias

John W. Deming, M. D., Alexandria, Louisiana

2:30 P. M.

Emphysema and Cor Pulmonale

Clay A. Waggenspack, Jr., M. D., Baton Rouge, Louisiana

3:00 P. M.

Recess

3:15 P. M.

Pericarditis

Don Chapman, M. D., Houston, Texas

4:15 P. M.

Panel Discussion: Hypertension, Systemic and Pulmonary

Drs. Chamberlain, Chapman, Deming and Waggenspack, Jr.

RUDOLPH MATAS AWARD IN VASCULAR SURGERY

A memorial service honoring Dr. Rudolph Matas and the seventh presentation of the Rudolph Matas Award in Vascular Surgery will be held Friday, May 9, in the Hutchinson Memorial Building of Tulane University School of Medicine. Dr. Matas, who died September 23, 1957, at the age of 97 years served Tulane's Department of Surgery all of his adult life, becoming Professor and Head of the Department in 1894. Upon his retirement in 1927 he was appointed Emeritus Professor of Surgery which post he occupied until his death. Dr. Matas was a member of the Louisiana State Medical Society for 77 years and its President in 1894 and was a member of the Orleans Parish Medical Society for 75 years. He was one of the twelve founders of the American College of Surgeons in 1913 and was its President in 1925-1926. He was President of the American Surgical Association in 1909, President of the International Society of Surgery in 1936, President of the American Association for Thoracic Surgery in 1920, and President of the Southern Surgical and Gynecological Association, now the Southern Surgical Association, in 1910. Among his honorary memberships were those in the Royal Academy of Medicine of Barcelona, the Royal College of Surgeons (England), the National Cuban Order of Carlos Findlay, the Order of Leopold of Belgium, the Gorgas Medical Society, the Havana Academy of Medicine, and the Spanish Royal Academy.

The Rudolph Matas Award in Vascular Surgery will be made to Dr. John H. Gibbon, Jr., the Samuel D. Gross Professor of Surgery and Head of the Department at Jefferson Medical College of Philadelphia. The award is in recognition of his pioneering efforts in the field of extracorporeal circulation which resulted in the development of a heart-lung apparatus. Recipients of the award in past years are Dr. Mont R. Reid, 1934; Dr. Reynaldo dos Santos, 1937; Dr. Daniel C. Elkin, 1940; Dr. Robert E. Gross, 1947; Dr. Alfred Blalock, 1950; and Dr. Michael E. DeBakey and Dr. Emile Holman, 1954.

THIRTEENTH NATIONAL CONFERENCE ON RURAL HEALTH

Heidelberg Hotel, Jackson, Mississippi

March 6-8, 1958

The Thirteenth annual conference was held in Jackson, Mississippi, March 6, 7, 8, 1958, in the Heidelberg Hotel. Due to the bad weather, and other conditions, the attendance was not quite as high as it had been in years gone by, but the enthusiasm was still there. The members of the Rural Health Council of the American Medical Association were there, and many of the Advisory Council members.

The first day's theme covered a nutritional balance for rural people, and a panel discussion later in the afternoon was given on "The Family Visits the Dentist". A reception was given that night by the Mississippi State Medical Society.

On Friday morning, the program consisted of two panels, one on "Safety" and the other on "What the Doctor Expects and What the Patient Expects of His Doctor". The afternoon was given over to the "Rising Costs of Health Service" and the "Distribution of Physicians". Dr. George E. Twente, of Jackson, Mississippi, went into the latter thoroughly, explaining the fact that there are plenty of doctors in America, but that for various reasons, many times economic, they do not locate in sparsely developed places. Since there is a greater production of doctors than there has ever been, he suggested that we might have a situation of surplus physicians.

The banquet on Friday night was presided over by Dr. F. S. Crockett, the perennial chairman of the Rural Health Council and Rural Health Conference. Two able speakers, Dr. Howard A. Nelson, President of the Mississippi State Medical Association, who spoke on "Medicine's Prestige" and Dr. F. J. L. Blasingame, General Manager of the American Medical Association, who spoke on "Patient-Physician Cooperation in Rural Health", were well received. The banquet was well attended, and the enthusiasm was great.

Saturday morning was given over to a number of subjects, including a paper by Mrs. John Rice of Sheldon, Illinois, 'We Work for Health". "Something Old; Something New" was presented by Mrs. Frances H. MacDonald of Oklahoma City. Dr. Paul M. Bancroft of Lincoln, Nebraska discussed "The Fourth "H" (Health). This was followed by a demonstration on the right way to handle injuries by a team of youngsters from Mississippi, and a preceptorship program as carried out by Cincinnati University.

The Conference was closed on a vibrant note by Mrs. Charles W. Sewell, the perennial speaker for the Conference and the "sweetheart of rural America", in which she discussed "It's Your Move".

The former chairman, Dr. Guy R. Jones of Lockport, Louisiana, and your author, Chairman of the Rural and Urban Health Committee, were in attendance. There were various other members of the Louisiana Health Council in attendance, representing the state of Louisiana.

J. P. SANDERS, M.D.

A.M.A. FILM REVIEWS

The ninth annual publication of "Reviews of Medical Motion Pictures" is now available on request from the Film Library of the A.M.A. This publication is prepared by the Council on Scientific Assembly, Motion Pictures and Medical Television, and contains reprints of all film reviews published in The Journal A.M.A. during 1957.

INSECTICIDE RESIDUE MAY CAUSE POISONING

More attention should be given to the possibility of poisoning from residue left on plants after they have been dusted with insecticides, two West Coast researchers said recently.

This was reported in an article written for the Feb. 15 Journal of the American Medical Association by Dr. Griffith E. Quinby, of Wenatchee, Wash., and Allen B. Lemmon, A.B., of Sacramento, Calif.

The warning of the danger from residues was advanced after the team studied a number of outbreaks over a six-year period of parathion poisoning among crop workers who entered fields shortly after the crops had been dusted with the chemical.

"Previously, due to the limited number of published reports of poisoning by residues, doctors have tended to insist on a history of direct exposure to sprays, concentrates, or dusts before giving serious consideration to a diagnosis of parathion poisoning," the researchers said.

A striking difference exists between poisoning produced by direct exposure and that due to residues.

In cases of direct exposure it is unusual for more than one or two of those involved to become ill.

Large numbers of those exposed to residues have been known to be affected. This type is also considered to be more mild and the onset is more gradual.

The current study also points out that of those crops examined, all had foliage at least chest high. "This may imply that workers are poisoned in this way only when dusted or bathed in the dilute residues practically from head to foot," the report added.

In the majority of the cases, poisoning was detected within two days after the solution had been applied to the crops. There have been extreme cases of poisoning up to four weeks after exposure.

Parathion is a chemical spray long used by workers who thin, pick, cultivate or irrigate crops. These crops include: apples, pears, grapes, hops, and citrus fruits.

The report concludes by saying, "It is obvious that regulations and recommendations which have been promulgated to prevent occurrence of such episodes are not only justified in purpose but probably need review, modification and improved enforcement if such incidents are to be prevented."

Dr. Quinby is attached to the Communicable Disease Center, Public Health Service, U. S. Department of Health, Education and Welfare, at Atlanta, Ga., and Mr. Lemmon is with the Bureau of Chemistry, Department of Agriculture of California.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

The highlight on the agendum of entertainment for the wives of the visiting doctors in New Orleans attending the Twenty-first Annual meeting of The New Orleans Graduate Medical Assembly was the tea and fashion show.

The members of the Woman's Auxiliary to the Orleans Parish Medical Society entertained in honor of the visitors at a Mexican Fiesta Fashion show and Tea at the Orleans Club on Wednesday March 5th.

On the stage of the Auditorium of the Orleans Club the "south of the border" idea was carried out in a rainbow of color and glamorous cruise and resort ensembles with a sprinkling of spring and summer fashions, modeled to the delight of the visitors.

Receiving guests in the drawing room with the auxiliary president, Mrs. Eugene H. Countiss, were Mmes. Albert William Habeeb, Charles Lafayette Brown, Joseph O. Weilbacher, Jr., Charles B. Odom, Boni J. DeLaureal and H. Ashton Thomas.

Assisting in the dining room were Mmes. Martin O. Miller, Alton Ochsner, William Kohlmann, Mannie Mallowitz, James Ciaravella, Joseph J. Ciolino, C. Grenes Cole, J. Morgan Lyons, Esmond Fatter and Milton L. McCall.

Alternating at presiding at the tea and coffee services were Mmes. Max M. Hattaway, Andrew V. Friedrichs, Joseph D'Antoni, Edgar Hull, Edwin H. Lawson, Max Green, Maurice St. Martin, Ralph Hartwell, V. Medd Henington, H. Reichard Kahle, Donovan C. Browne, Val H. Fuchs, Charles Bahn, H. Theodore Simon and Jules Myron Davidson.

Mrs. Branch J. Aymond,
Publicity Chairman.

A cordial invitation is extended to all members of the Woman's Auxiliary to the American Medical Association, their guests, and the guests of physicians attending the convention of the American Medical Association, to participate in all social functions and attend the general meetings of the Auxiliary.

Headquarters will be at the Fairmont Hotel in San Francisco. The dates of the convention are June 23 - 27, 1958. Tickets for the various social functions will be available at the registration desk. There will be Hospitality rooms in the Green and Empire Rooms on the first floor.

Please register early and obtain your badge and program.

For further information contact:

(Mrs. M.) Harriet G. Mallowitz
State Chairman,
Press and Publicity

BOOK REVIEWS

Handbook of Physical Therapy; by Robert Shestack. New York, N. Y., Springer Publishing Co. Inc., 1956, pp. 119, $4.25.

This book is the outgrowth of the author's experience of fourteen years as a physical therapist. It is intended to present some of the fundamentals and uses of this rapidly growing science to the general practitioner, and also to be a quick reference for the physical therapist.

The book is divided into two parts. The first one describes the various modalities such as infra-red heat, hydrotherapy, massage, etc. available to the therapist. The second part takes up the application of these modalities to the treatment of common disorders. Completing the book is a section in which the muscles of the body are arranged according to their action.

The author is to be commended on his efforts to simplify the field of physical medicine for the busy physician and technician, but the result is over-simplification which may lead the reader to much misunderstanding. A chapter on the history of physical medicine is two pages long. No mention is made of the founding of the American Board of Physical Medicine—a milestone in the development of the specialty, or the creation of its own section in the A.M.A.

Chapter headings are particularly misleading. One chapter deals with "Neurological Conditions", another with "Peripheral Nerve Conditions"; yet brachial neuritis and the intervertebral disc syndrome are discussed under the former. Poliomyelitis, which certainly is a neurological condition, is separated from it by chapters on "Acute Joint Injuries and Orthopedic Disorders", and "Fractures". One is led to believe that fractures are not orthopedic disorders.

Oversimplification is carried to extremes in other instances. The chapter on the eye, ear, nose and throat contains this treatment for chronic meibomitis: "Massage of the lids is very helpful". The statement is true, but certainly does little to show the physician how to massage the lids, and how often.

Elsewhere, the author swings to the complicated tack. He states on page 117; "There are many tests for diagnosing nerve injuries, such as electromyography, chronaxie, dermometry, sign of Tinel,

reaction to galvanic and faradic current, and the sweating test. Special training and equipment are needed for some of these tests. The electrical and sweating tests can be easily performed in any physician's office". This reviewer knows of few tests more simple than Tinel's sign. It involves percussing over the site of a divided nerve. A tingling sensation distal to the percussion site indicates a partial lesion or the beginning regeneration of the nerve.

In summary, physical therapists and technicians will find the handbook very useful. Physicians would do well to use it only in conjunction with a standard textbook, like Krusen's "Physical Medicine", or Watkins' "Physical Medicine in General Practice".

JOSEPH P. RUMAGE, M. D.

The Early Diagnosis and Treatment of Acoustic Nerve Tumors; by J. Lawrence Pool, M.D., and Arthur A. Pava, M.D., Springfield, Ill., Charles C Thomas, 1957, pp. 161. Price $5.50.

In the historical section there is a reproduction of a plate showing a disseetion of an acoustic neurinoma, an illustration from a book by Charles Bell published in 1833. Bell also called attention to an involvement of the fifth nerve in addition to involving the portio dura and the portio mollis of the seventh nerve, whieh were the original names of the seventh and eighth nerves. As this patient died from a respiratory condition, Bell elassed the seventh nerve as a respiratory nerve. The library at the Tulane Medical School has a copy of the book published in 1833, as well as several others published by Bell. He found so many cases of facial nerve paralysis that the eondition was aptly called Bell's palsy. He also described anesthesia of the cornea associated with involvement of the fifth nerve. In addition to the classifieation of portio dura and portio mollis used with the seventh nerve, originally they claimed four ossicles: (1) malleus, (2) incus, (3) orbicular, (4) stapes. In the "Structure, Economy and Diseases of the Ear" by George Pilcher, M.D., in 1843, the orbicular is represented by a straight line. In the "Outlines of Physiology" by J. L. Comstock, M.D., in 1836, the orbicular is pictured as a circle. Kirkes and Paget's "Physiology", published in 1853, dropped the orbicular. They also agree with Bell and say that the seventh nerve is not a nerve of respiration.

Isaac H. Jones, M.D., in his "Equilibrium and Vertigo", states that the majority of the tumors in the cerebellopontile angles are acoustic neurinomas.

While serving as Neuroto-ophthalmo-laryngologist, in Clarence A. Patten's Clinic at the Delaware Hospital, Wilmington, Delaware, 25 brain lesions were found. One of these was an acoustic neurinoma. The patient had the cardinal symptoms: ipsilateral deafness and an ipsilateral lack of response to the caloric test. In addition, was a marked ipsilateral papilledema with a decided increase of the size of the physiological blind spot mapped out with a Peter's campimeter. This was confirmed when operated upon by Charles H. Frazier, M.D., at the University of Pennsylvania Hospital. Unfortunately, the patient died upon the sixth day. In discussing the case with Temple Fay, M.D., who was Frazier's resident, he sympathized with me when I told him that 2 out of 25 lived, by telling me that that was a good mortality.

In routine microscopic study of 250 petrous bones, Hady and Crowe report 6 in which extremely small neurinoma were present. (Hardy, M., and Crowe, S. J.: Early asymptomatic acoustic tumors, Arch. Surg. 32: 292, 1936). Lt. Colonel Theodore L. Hartridge, M.C., U.S.A., Brooke General Hospital, referred to the technique of Dr. Stacy R. Guild, Otological Dept., Johns Hopkins Hospital, in removing temporal bones for section. I am sure that his technique was used.

Fortunately these authors have made great strides in pathology, diagnosis, and decrease in operative mortality.

WILLIAM F. BONNER, M.D.

M.D., Eleventh Edition, The C. V. Mosby Com- *Diseases of the Skin;* by Richard L. Sutton, Jr., pany, St. Louis 3, Mo., 1956, 1479 pp. Price $29.50.

This voluminous textbook gives an excellent and modern account of dermatology. The subject matter is presented in a methodical and detailed manner, and a tremendous amount of material is included. There are 1972 good illustrations to supplement the reading material. These include both clinical photographs and photomicrographs.

One of the outstanding features of the textbook is its large and up-to-date bibliography whieh provides a convenient source of references when one wants detailed information on a subject.

This textbook is written primarily for those interested in advanced dermatology, but it would be useful as a reference book for physicians in general.

MARVIN E. CHERNOSKY, M.D.

PUBLICATIONS RECEIVED

Bailliere, Tindall and Cox, London, Eng.: Diagnosis and Treatment of Diseases in the Tropics, by H. C. Trowell, M. D. (3rd edit.).

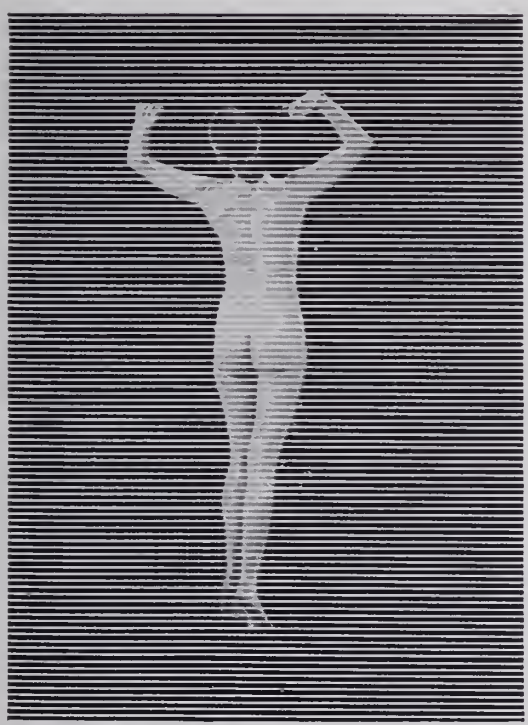
Grune & Stratton, N. Y.: Theory and Problems of Child Development, by David P. Ausubel, M. D., Ph.D.; Vertigo and Dizziness, by Bernard J. Alpers, M. D.; Psyehopathology of Communication, edited by Paul H. Hoch, M. D., and Joseph Zubin, Ph.D.

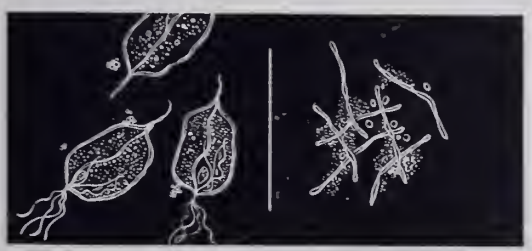
Philosophical Library, N. Y.: The Neuroses and Their Treatment, edited by Edward Podolsky, M. D.

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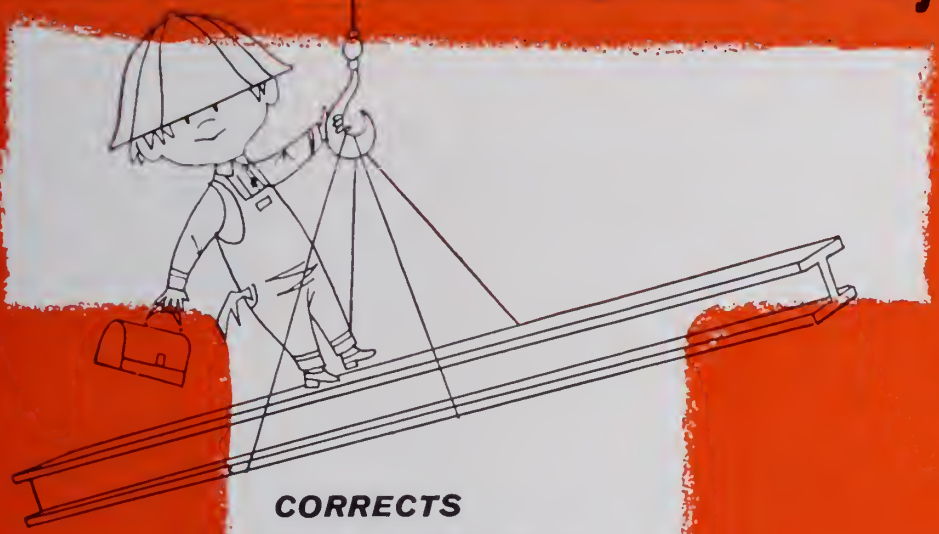
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FORMULA: Each teaspoonful (5 cc.) contains:

l-Lysine HCl	300 mg.
Ferric Pyrophosphate (Soluble)	250 mg.
Iron (as Ferric Pyrophosphate)	30 mg.
Vitamin B_{12} Crystalline	25 mcgm.
Thiamine Mononitrate (B_1)	10 mg.
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White wine, therefore, is prescribed with benefit in nephritis, especially that associated with hypertension and arteriosclerosis. Wine is not suggested in cases of renal insufficiency.

The Buffers in Wine—Such buffering agents as natural tartrates and phosphates in wine prevent the acidosis which normally tends to follow the ingestion of alcohol. Used in renal disease, therefore, wine tends to minimize acidosis and maintain the alkaline reserve.

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An extensive bibliography is now available showing the important role of wine in various phases of medical practice. A digest of current findings with specific references to published medical literature is yours for the asking. Just write for your copy of *"Uses of Wine in Medical Practice"* to Wine Advisory Board, 717 Market Street, San Francisco 3, California.

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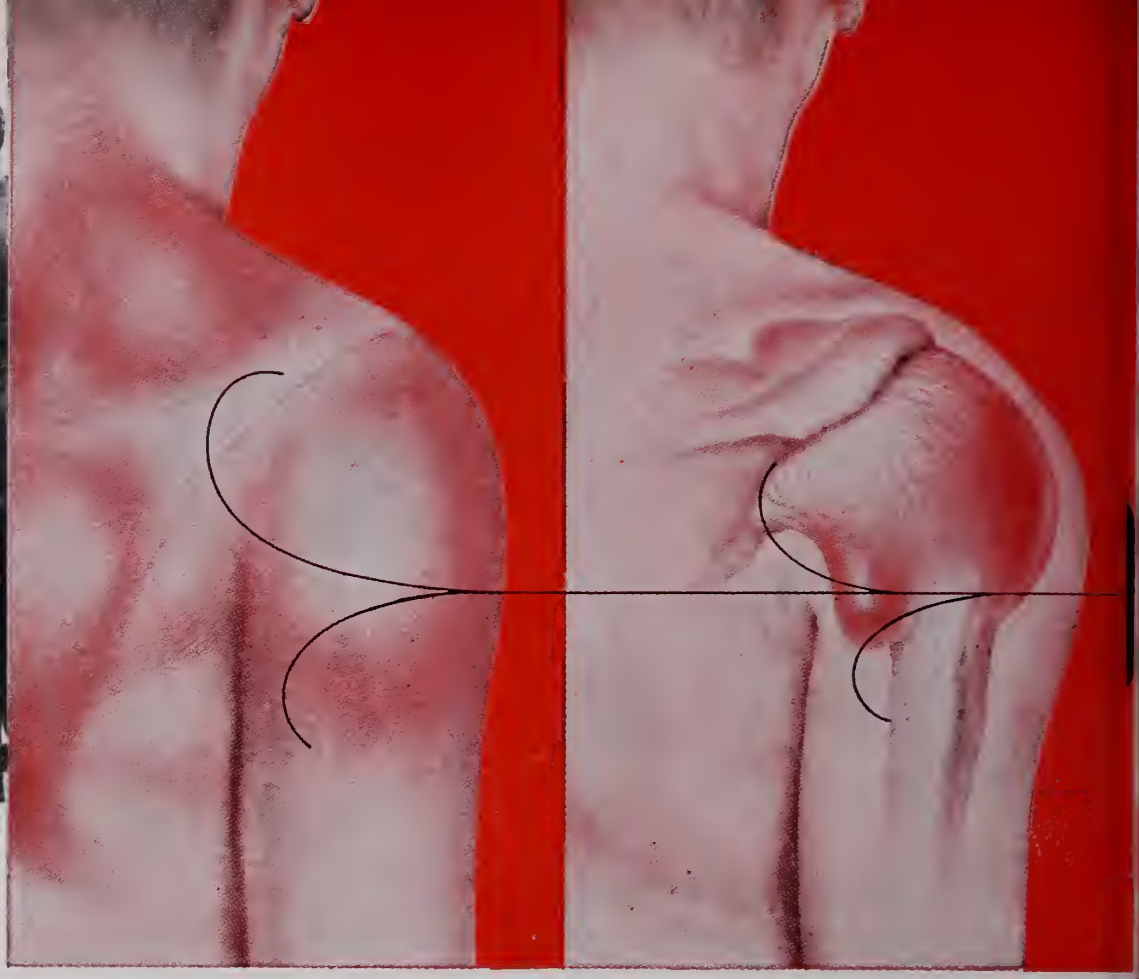
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1. Comroe's Arthritis: Hollander, J. L., p. 149 (Fifth Edition, Lea & Febiger, Philadelphia, Pa. 1953).
2. Merck Manual: Lyght, C. E., p. 1102 (Ninth Edition, Merck & Co., Inc., Rahway, N. J. 1956).

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meprobamate to relieve muscle spasm
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Riseman, J. E. F., Altman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites in the Treatment of Angina Pectoris, Circulation (Jan.) 1958.

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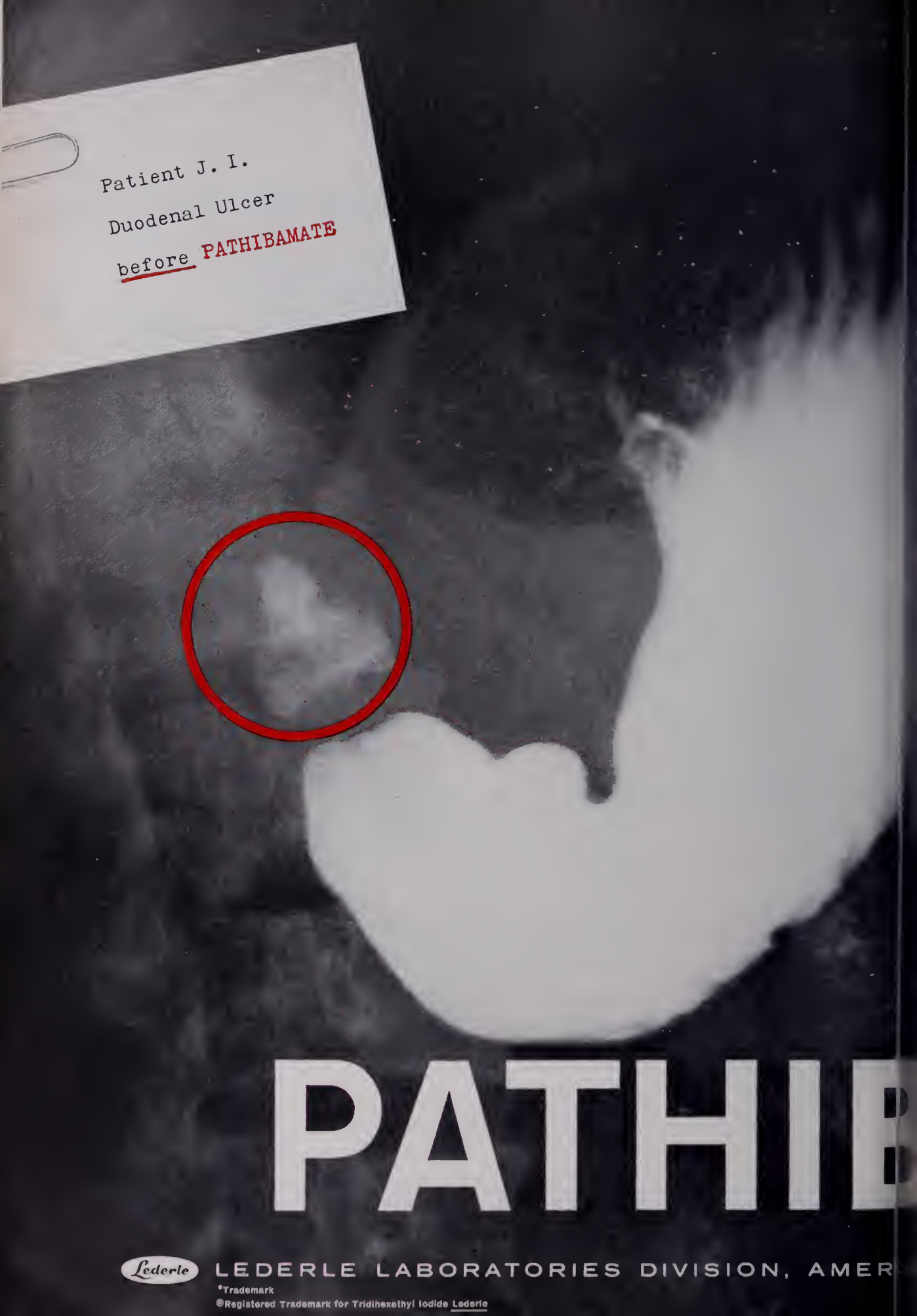
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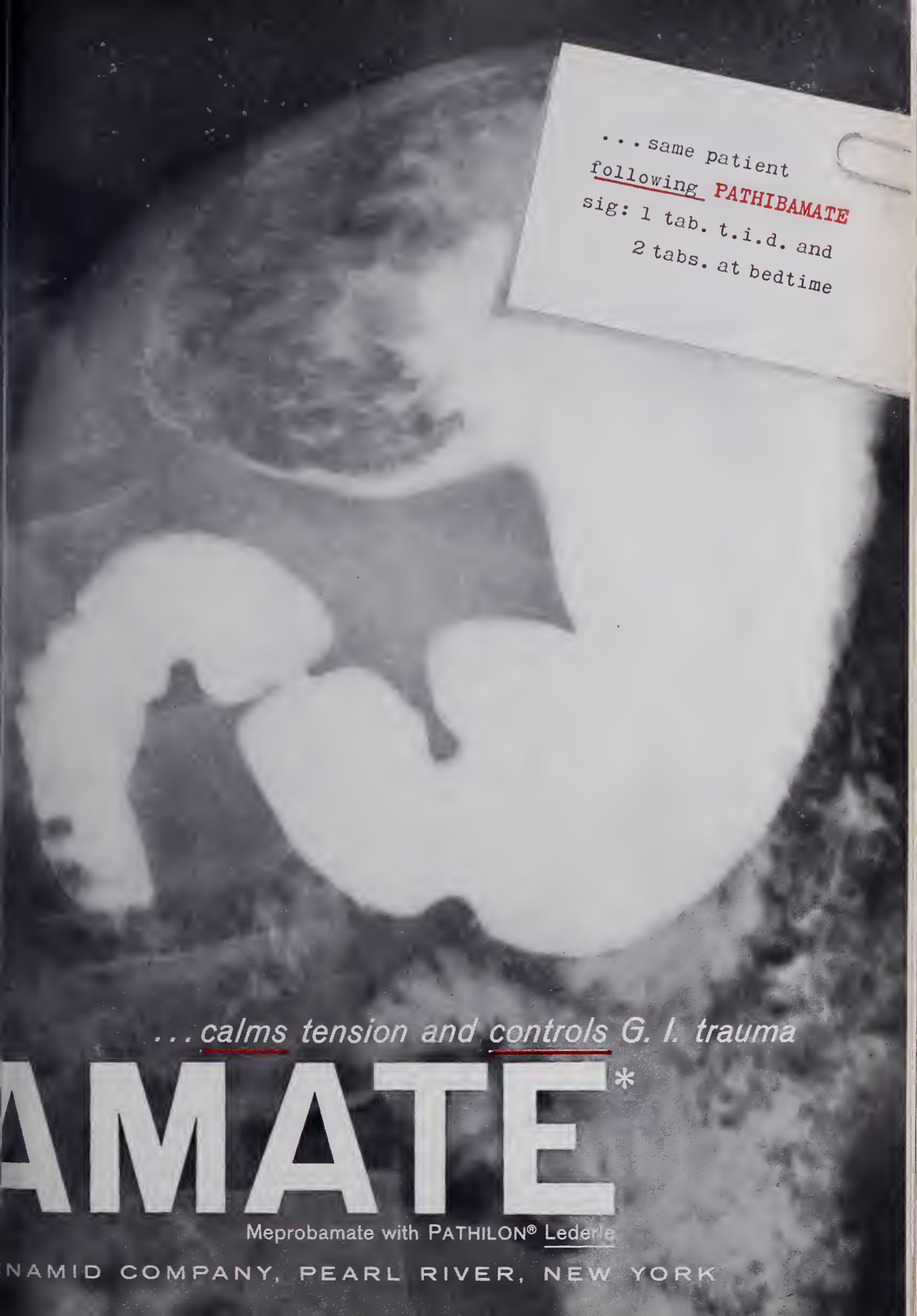
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Bottles of 25 and 100.

References: 1. Groskloss, H. H., et al: Clin. Med. 2:885 (Sept.) 1955. 2. Goldsmith, J. W.: Minnesota Med. 40:99 (Feb.) 1957.

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phosphate-free calcium, 10 essential vitamins, 8 important minerals. Bottles of 100.

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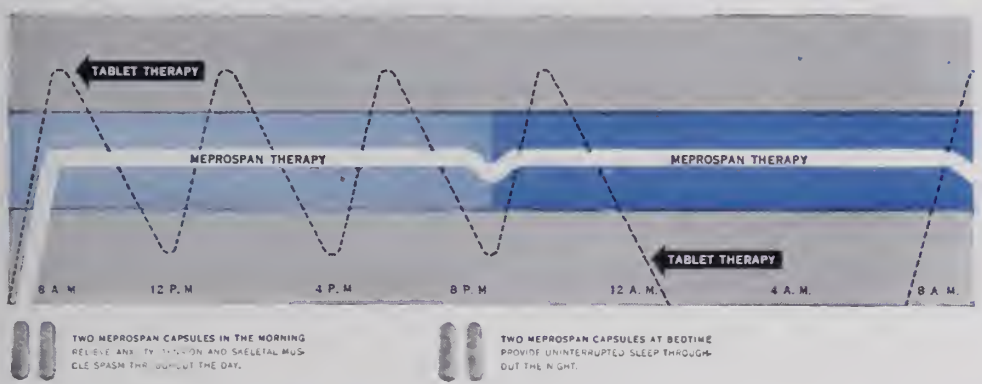
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Tablets:
Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

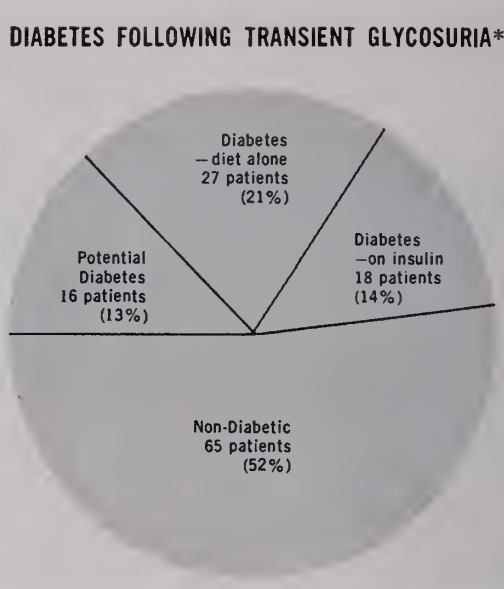
Syrup:
Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

[1] Nichols, R. L. and Finland, M.: J. Clin. Med. 49:410, 1957.

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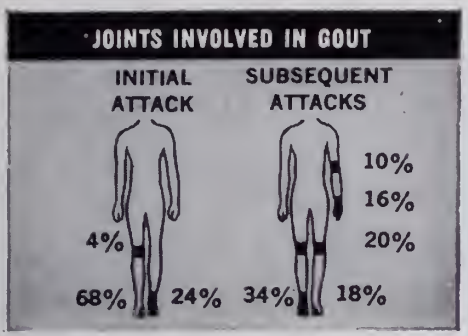
*Murphy, R.: Connecticut M. J. *21*:306, 1957.

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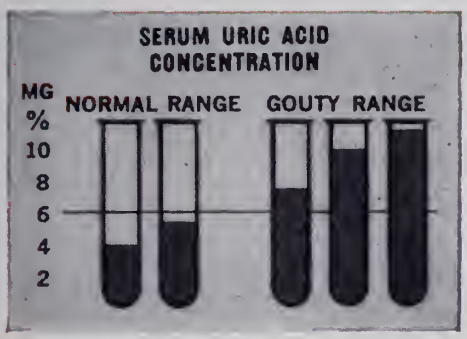
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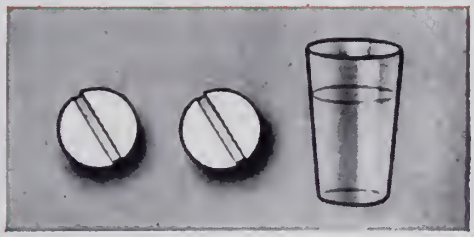
1. Recurrent joint pain followed by long periods of complete remission. *(Percentages refer to incidence.)*



2. Enlargement of bursae such as in this case involving the olecranon bursa.



3. Elevated serum uric acid levels.



4. Colchicine test: full dose (0.5 mg.) every 1 to 2 hours until pain is relieved or nausea, vomiting or diarrhea occur. The test requires usually 8 to 16 doses. Pain relief is highly indicative of gout.

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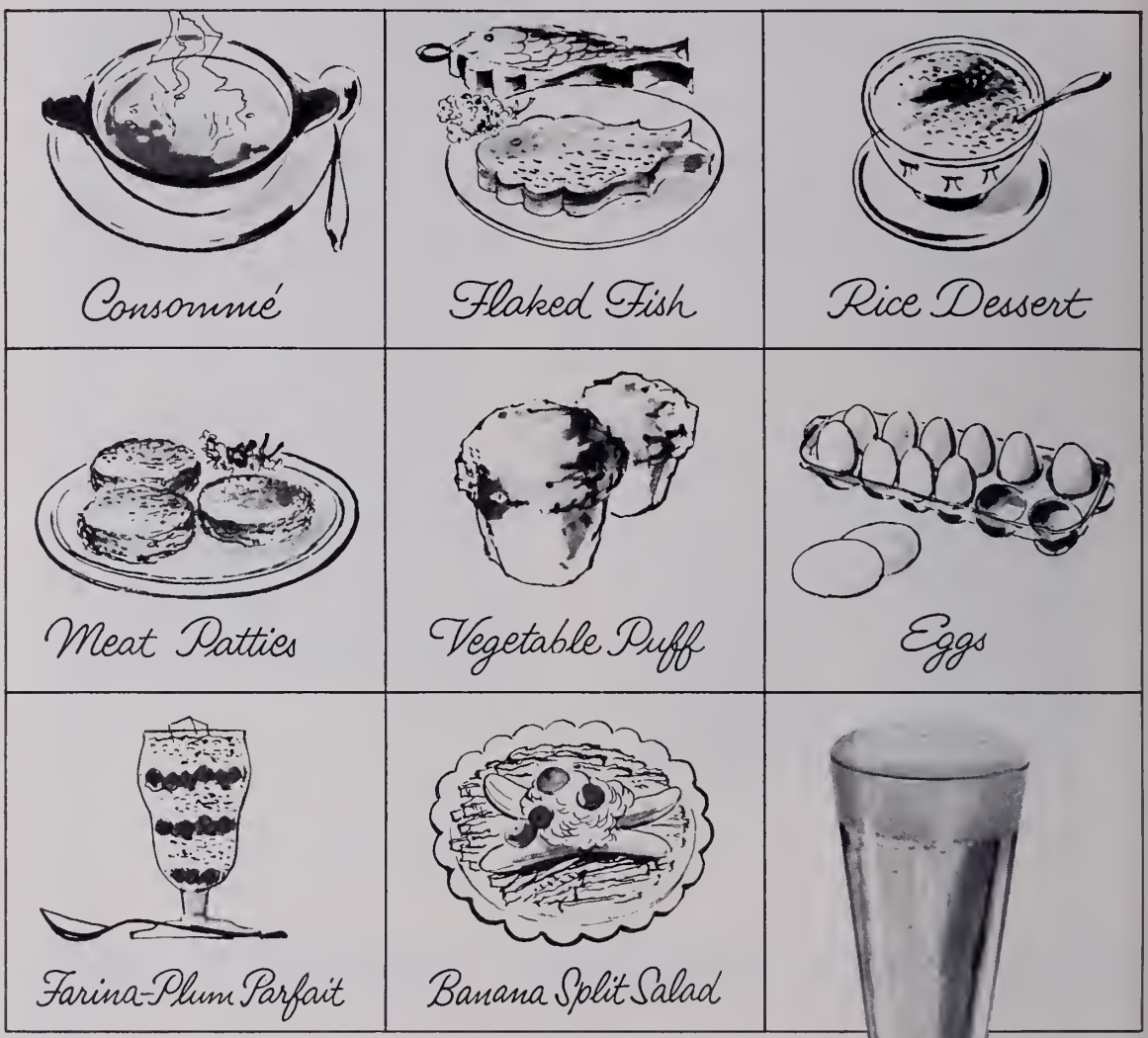
- Urinary excretion of uric acid is approximately doubled.
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Of course, you'll tell your patient just which foods you want him to have—and whether he can enjoy a glass of beer* with his meals.

*pH—4.3, 104 Calories/8 oz. glass (Average of American Beers)

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Ford, R. V., and Moyer, J. H.: Rauwolfia Toxicity in the Treatment of Hypertension, Postgrad. Med. 23:41 (Jan.) 1958.

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PETN + ATARAX®

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why PETN? *For cardiac effect:* PETN is ". . . the most effective drug currently available for prolonged prophylactic treatment of angina pectoris."[1] Prevents about 80% of anginal attacks.

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1. Russek, H. I.: Postgrad. Med. *19*:562 (June) 1956.

Dosage and Supplied: Begin with 1 to 2 yellow CARTRAX "10" tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. When indicated this may be increased by switching to pink CARTRAX "20" tablets (20 mg. PETN plus 10 mg. ATARAX.) For convenience, write "CARTRAX 10" or "CARTRAX 20." In bottles of 100.

CARTRAX should be taken 30 to 60 minutes *before* meals, on a continuous dosage schedule. Use PETN preparations with caution in glaucoma.

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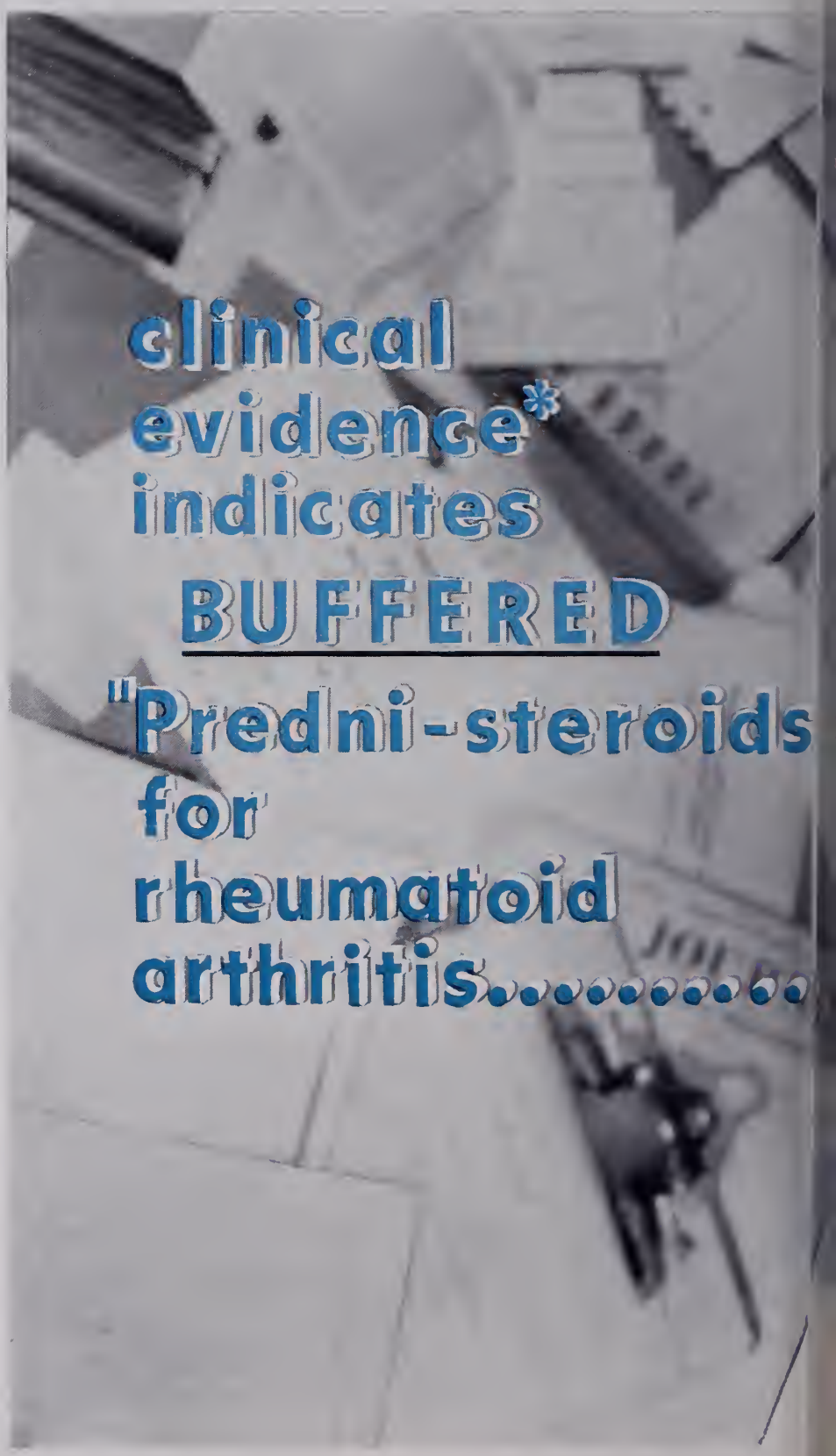
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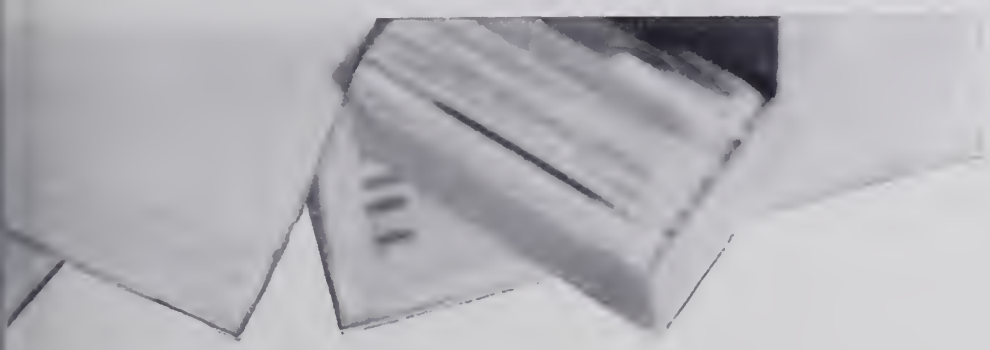
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Gastric distress accompanying "predni-steroid" therapy is a definite clinical problem—well documented in a growing body of literature.

iew of the beneficial re-
observed when antacids
d diets were used concomi-
th prednisone and predni-
e feel that these measures
e employed prophylacti-
offset any gastrointestinal
ts."—Dordick, J. R. *et al.*:
te J. Med. 37:2019 (June
.

*"It is our growing conviction that all patients receiving oral steroids should take each dose after food or with adequate buffering with aluminum or magnesium hydroxide preparations."—Sigler, J. W. and Ensign, D. C.: J. Kentucky State M. A. 54:771 (Sept.) 1956.

*"The apparent high incidence of this serious [gastric] side effect in patients receiving prednisone or prednisolone suggests the advisability of routine co-administration of an aluminum hydroxide gel."—Bollet, A. J. and Bunim, J. J.: J. A. M. A. 158:159 (June 11) 1955.

One way to make sure that patients receive full benefits of "predni-steroid" therapy plus positive protection against gastric distress is by prescribing CO-DELTRA or CO-HYDELTRA.

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PREDNISONE BUFFERED

provide all the benefits of "Predni-steroid" therapy— plus positive antacid protection against gastric distress

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2.5 mg. or 5.0 mg. of prednisone or prednisolone, plus 300 mg. of dried aluminum hydroxide gel and 50 mg. magnesium trisilicate, in bottles of 30, 100, 500.

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metaphosphate produced markedly higher blood levels than capsules containing either the corresponding base or the hydrochloride alone. In addition, the average levels derived from the tetracycline base or the chlortetracycline base were higher than those produced by the corresponding hydrochloride though lower than those resulting from the mixture containing the base and sodium metaphosphate. In the study with chlortetracycline[6] capsules containing a mixture of the hydrochloride and sodium metaphosphate were also included in the crossover, and the average levels produced by these capsules were the same as with the mixture of chlortetracycline base with sodium metaphosphate.

Although the enhancement of blood levels of tetracycline by phosphate, either complexed to the tetracycline or mixed with the base or the hydrochloride, thus seemed fairly well established, some doubts still remained because certain reliable observers (including many whose results have not been published) failed to confirm the findings with the materials and methods they used. Further confusion seemed to be added by a subsequent report of Welch et al.,[7] who, in repeating a crossover study with capsules of tetracycline phosphate complex and tetracycline hydrochloride with and without sodium metaphosphate, found [illegible]

"...Tetracycline hydrochloride and citric acid, in an encapsulated mixture, produced higher serum concentrations and greater urinary excretions, and hence better absorption of tetracycline, than any other preparation studied..."

[illegible] addendum to the last mentioned paper of [illegible] et al.[7] indicates that in their study the capsules of tetracycline hydrochloride, chlortetracycline hydrochloride and tetracycline phosphate complex all contained dicalcium phosphate as a filler, whereas the capsules containing citric acid and sodium hexametaphosphate did not contain any dicalcium phosphate. This could clearly explain the discrepancies noted in that study. Likewise, the inconsistencies in other studies may very well have been due to the presence of calcium as fillers in some of the capsules and not in others.

[illegible] of sodium metaphosphate were published simultaneously with the last mentioned report of Welch et al.[7] These data were based on thoroughly controlled studies both in rats[8] and in man[9] and include additional findings that serve to explain, fairly conclusively, the various discrepancies that have been mentioned.

The experiments in rats[8] were carried out to study the effects of citric acid, dicalcium phosphate, sodium metaphosphate, food, oil and sorbitol on the serum antibacterial activity produced by the administration of tetracycline hydrochloride or tetracycline base. Citric acid administered in equal weight with tetracycline hydrochloride gave the highest concentrations of all the preparations studied. No enhancing effect was obtained from citric acid when given with tetracycline base. Dicalcium phosphate and food resulted in lower, and sodium metaphosphate in higher, serum antibacterial activity than was observed in their absence. Oil and sorbitol did not interfere with tetracycline absorption.

Dicalcium phosphate is widely used as a filler in various capsules, including those of the tetracyclines. The authors cite a large number of other studies that implicate the presence of calcium ions as the cause of the reduced absorption of tetracyclines and show that citric acid can partially neutralize this effect. The depressing effect of food on the serum levels of tetracycline is likewise explained by the goodly amount of minerals contained in commercial laboratory diets and they postulate that the multivalent cations may be responsible for the poorer absorption of the drug. The authors could not explain the failure of citric acid to enhance serum concentrations when administered with tetracycline base in contrast to its marked effect when given as the hydrochloride. However they hypothesized that the ability of citric acid to enhance serum levels of tetracycline is related to its ability to form complexes [illegible] unavailable for

This, however, fails to explain the most recent findings of Welch and Wright,[10] who compared the absorption of three capsules, each containing 250 mg. of oxytetracycline hydrochloride — one without any adjuvant, one with 250 mg. of citric acid and the third with 380 mg. of sodium hexametaphosphate; no other filler was contained in any of these capsules. In triplicate

Editorial.
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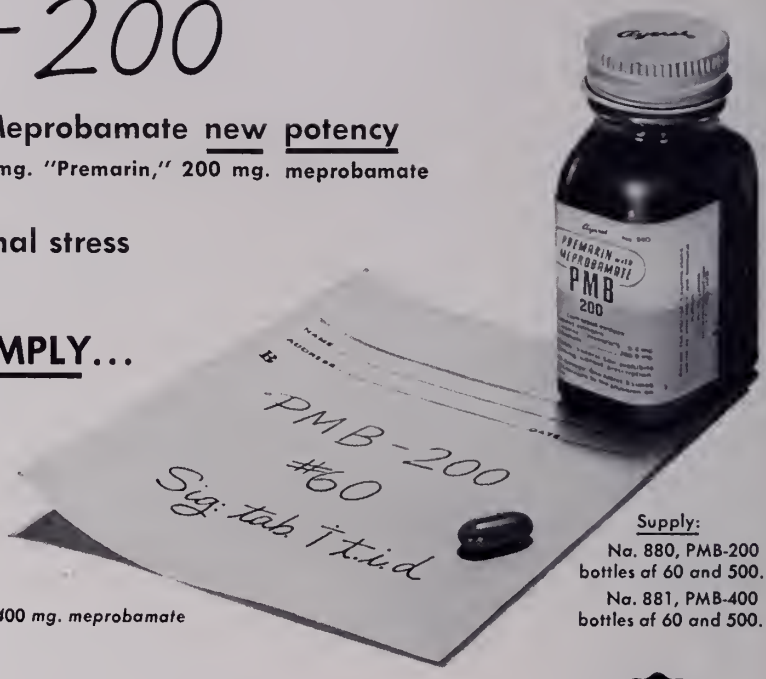
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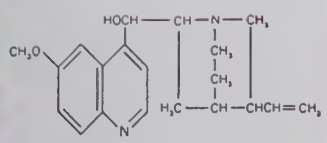
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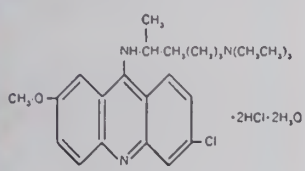
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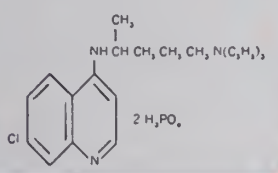
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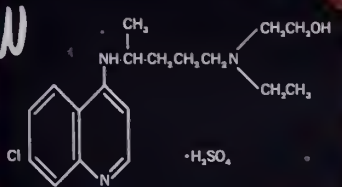
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[1] Richter, S. L., and Harrison, J. W. *Cleveland Clin. Quart.* 24:98, Apr., 1957.
[2] Alexander, L. J. The Schoch section. *Bull. A. Mil. Dermatologists* 5:25, Nov., 1956.

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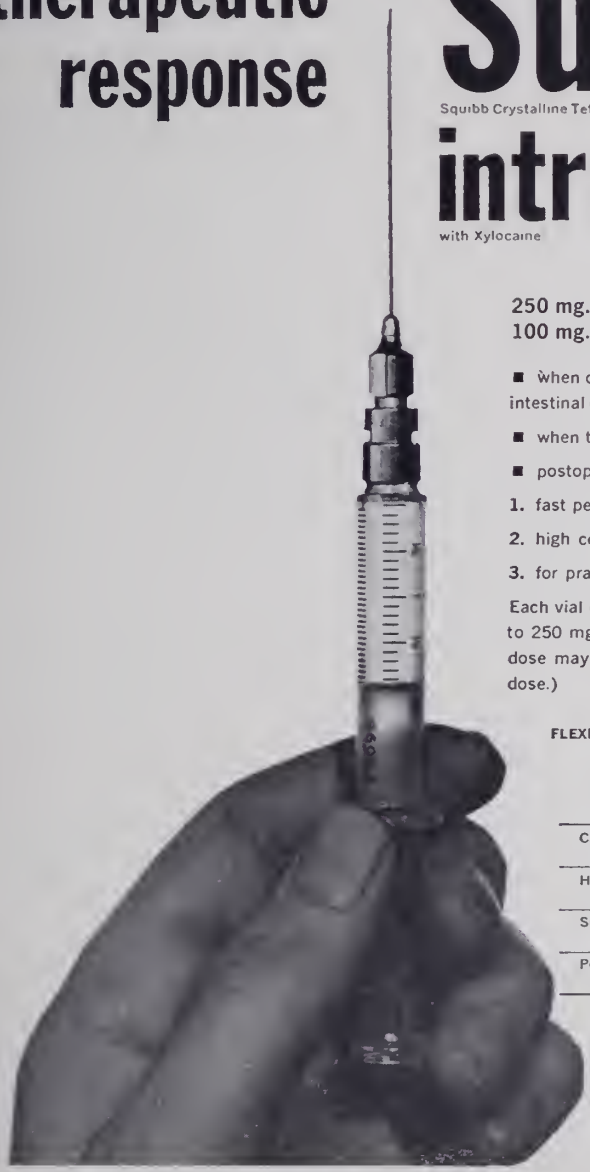
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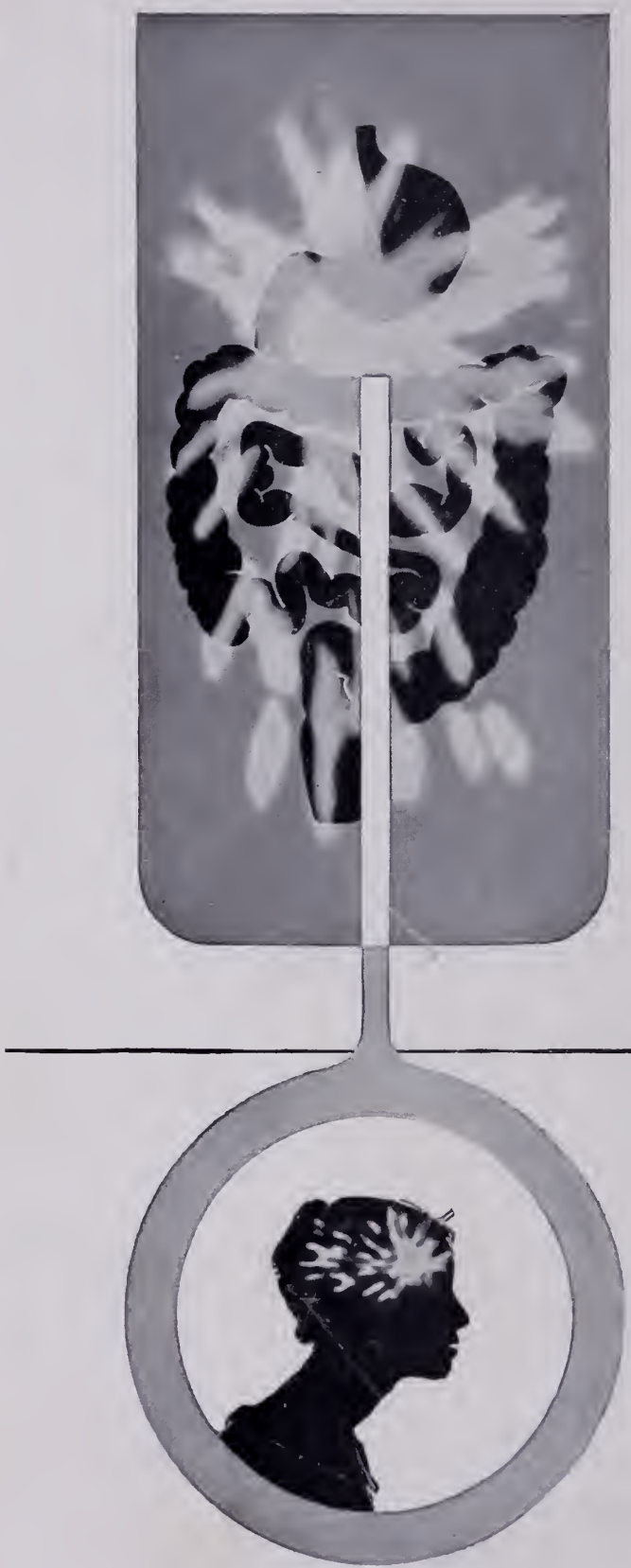
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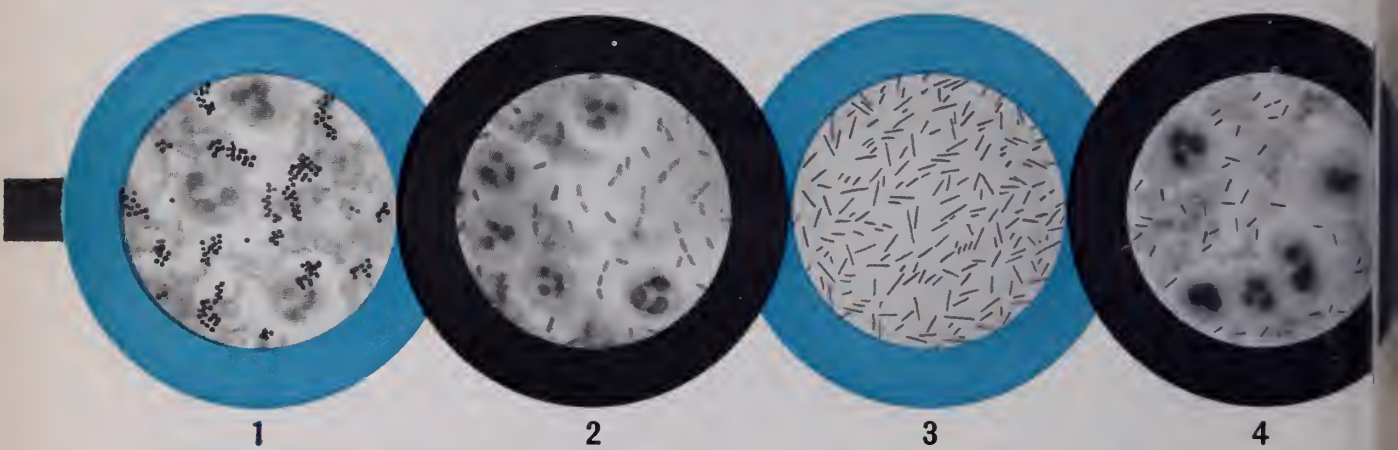
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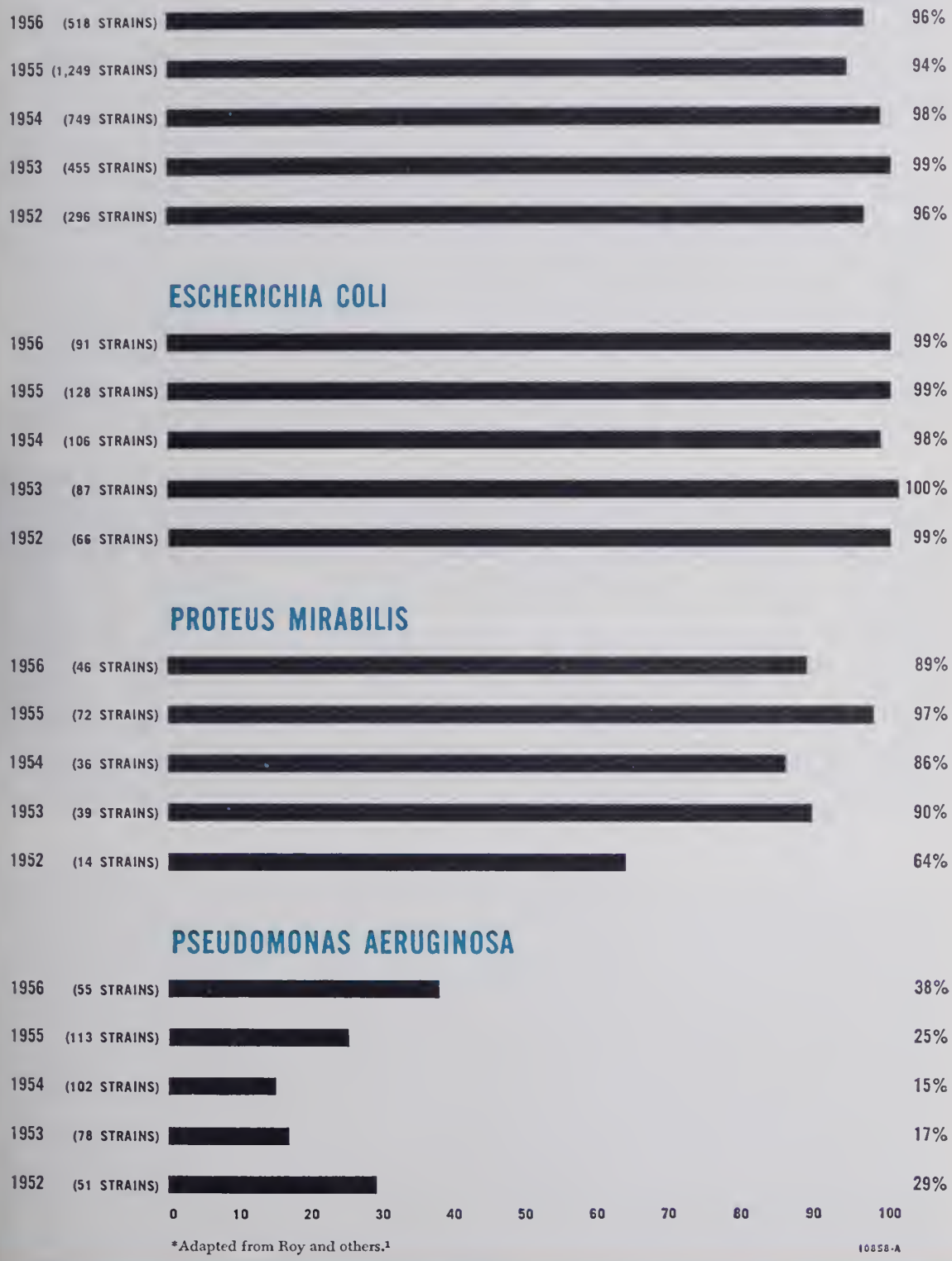
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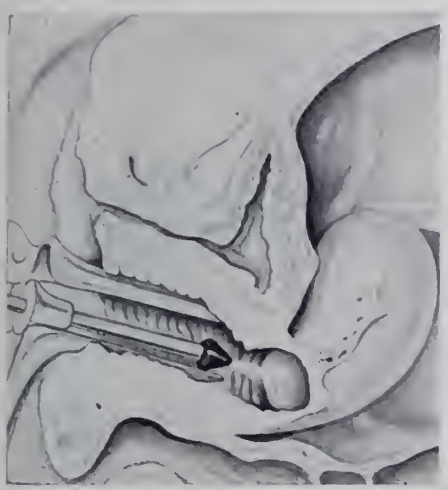
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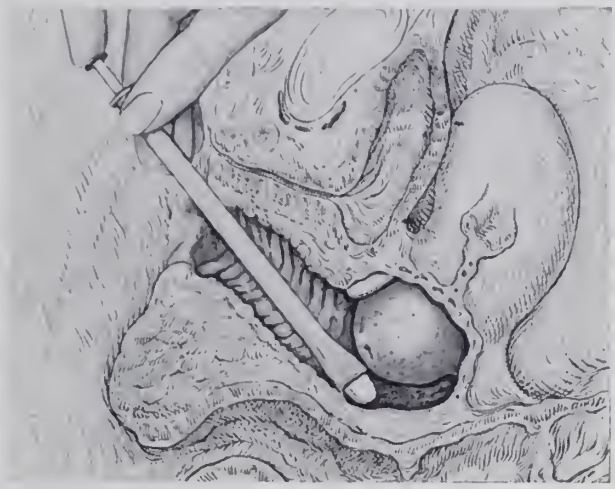
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Vaginal secretions normally show a high degree of protective acidity (pH 3.8 to 4.4). When this "acid barrier" is disturbed, growth of benign Döderlein bacilli is inhibited and that of pathogens encouraged. Floraquin not only provides an effective protozoacide and fungicide (Diodoquin®) destructive to pathogenic trichomonads and yeast, but also furnishes sugar and boric acid for reestablishment of the normal vaginal acidity and regrowth of the normal protective flora.

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A Floraquin applicator is supplied with each box of 50 Floraquin tablets. G.D. Searle & Co., Chicago 80, Illinois, Research in the Service of Medicine.

*Williamson, P.: Trichomonad Infestation, M. Times *84*:929 (Sept.) 1956.

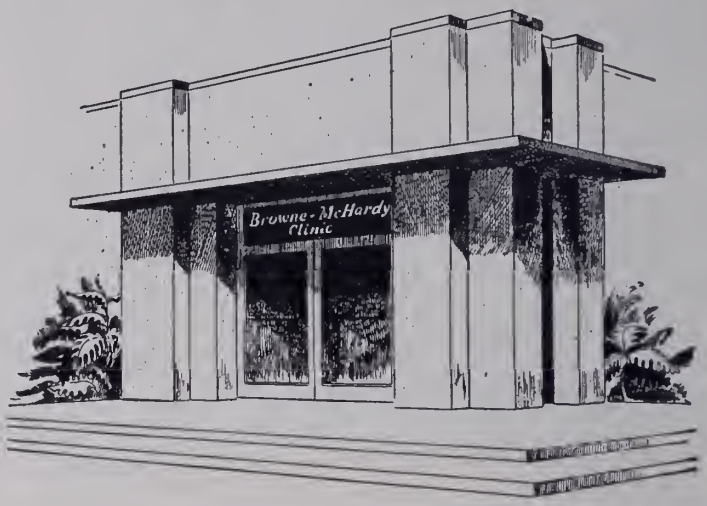
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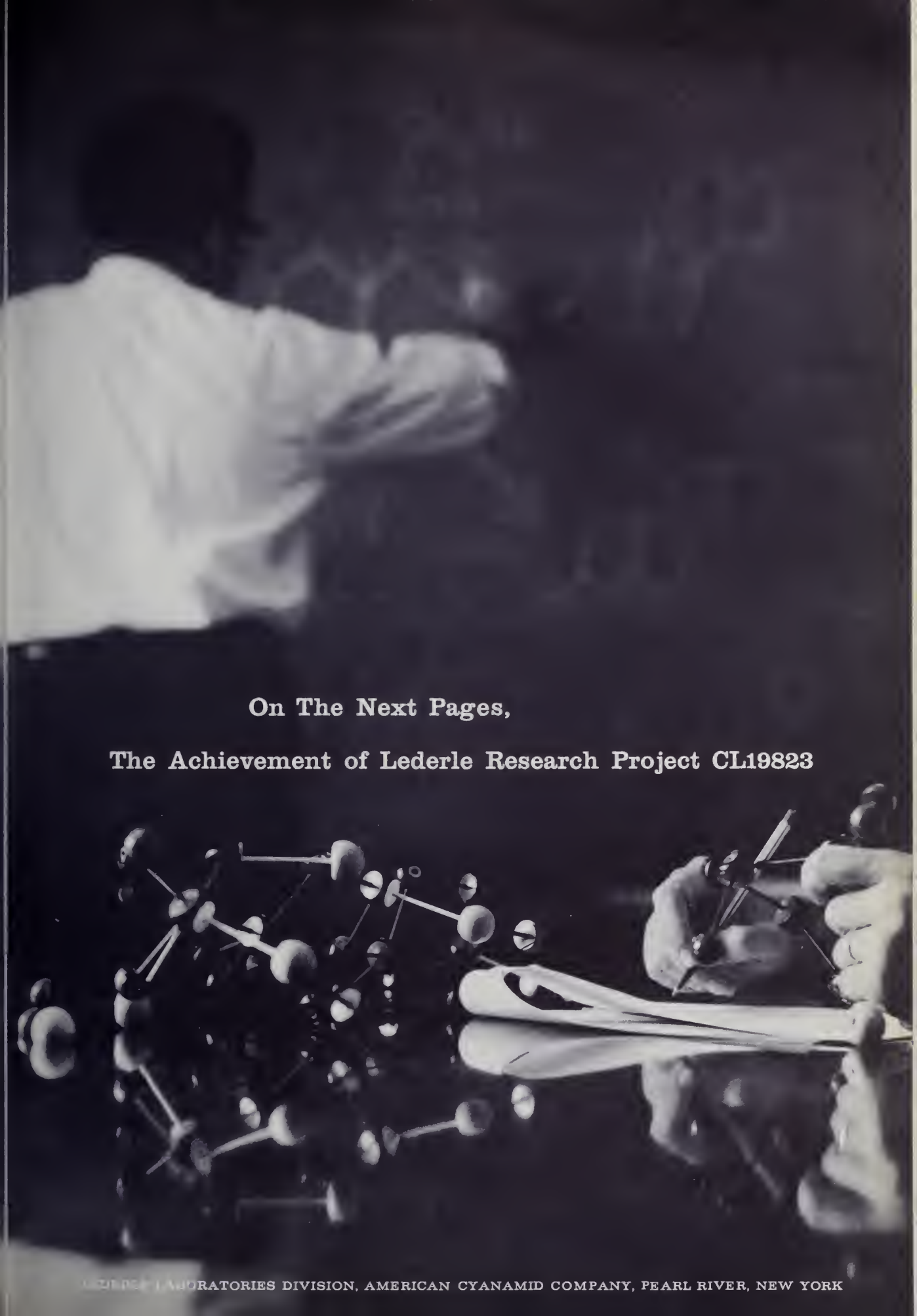
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Each *sodium-free* BUFFERIN tablet contains acetylsalicylic acid, 5 grains, and the antacids magnesium carbonate and aluminum glycinate.

Reference: 1. J.A.M.A. 158:386 (June 4) 1955.

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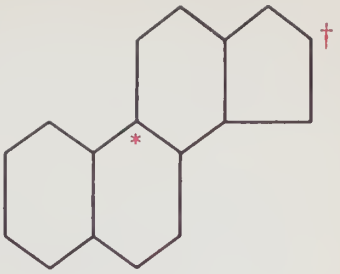
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  - No potassium loss
  - No interference with psychic equilibrium
  - Low incidence of peptic ulcer and osteoporosis

Biological Effects of Aristocort

with particular emphasis on:

Kidney function

Animal studies on ARISTOCORT[1] have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.[1] Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.[2] Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.[3] Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.[4,5] In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.[6,7]

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.[1] Potassium balance studies in humans[2,3] revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.[6,7]

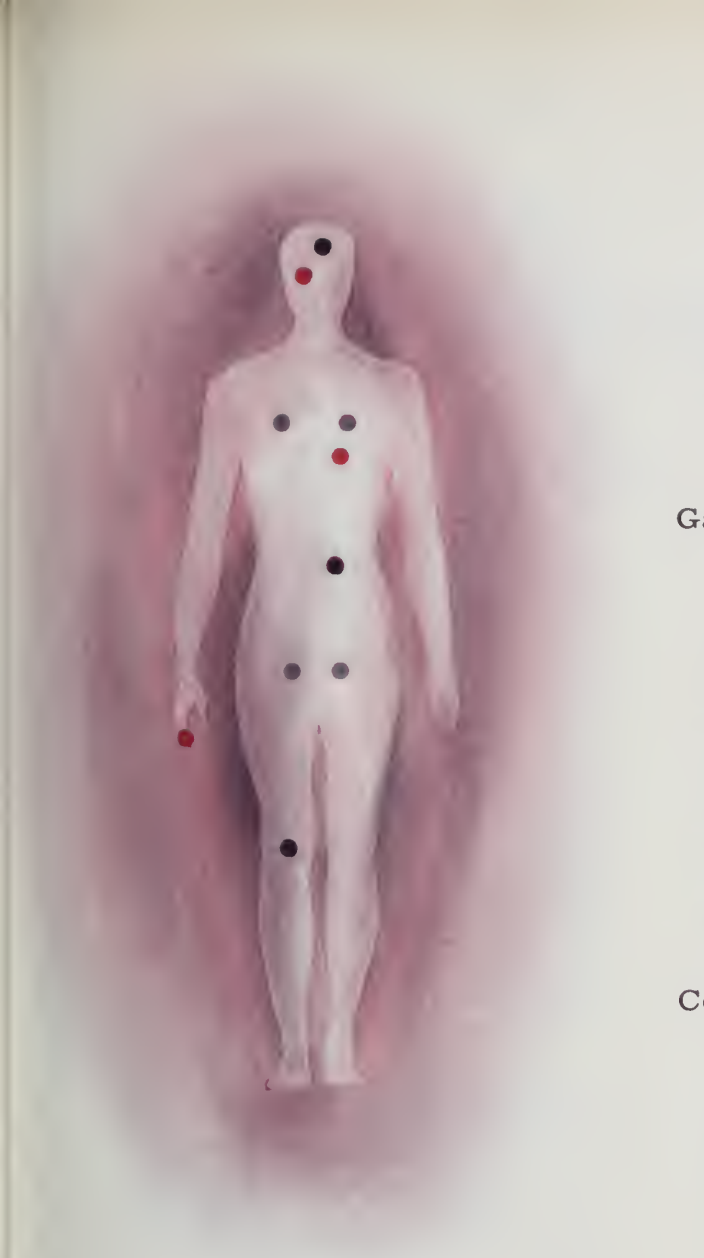
Calcium and phosphorus

Phosphate excretion in animals[1] was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies[3] demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.[3] At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.[2,3]

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.[8]



Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.[1]

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet[1] and cottonball[9] tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.[10] Clinical studies[11] of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.[12] The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

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The Promise of Aristocort in Reduction of Side Effects

It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are reported below.

Peptic Ulcer

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case[1]). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,[2] and toxic syndromes producing even convulsions and death.[3]

Since the onset of these complications is not directly related to duration of steroid administration,[4] the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.[5] Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.[1,6]

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.[7,8] Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.[1] These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, lightheadedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,[9] 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),[5] and in inflammatory and allergic skin diseases (33-50 per cent).[10,11]

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in lower incidence of major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort in Rheumatoid Arthritis

ARISTOCORT *therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.*

Significant is the fact that most patients were *severe* arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates[1] treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of* ARISTOCORT *sufficient to control arthritic symptoms.*

Hartung[2] treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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1. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957. 2. Hartung, E. F.: Paper presented at Florida Academy of General Practice, St. Petersburg, Florida, Nov. 2, 1957.

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The Promise of Aristocort in Respiratory Allergies

About 200 patients with respiratory allergies have been treated with ARISTOCORT *for continuous periods up to eight months.*

Results of treatment

Sherwood and Cooke[1, 2] gave ARISTOCORT to 42 patients with bronchial asthma and allergic rhinitis. Average dose needed to control the asthmatic group was approximately 6 mg. per day (range, 2 to 14 mg.). Results, which were called "good to excellent" in all but four, were achieved on one-third less than similarly effective doses of prednisone or prednisolone.

The investigators noted other major improvements in ARISTOCORT therapy over the older steroids. There was no increase in blood pressure in any patient: *on the contrary, in 12 patients, there was reduction of pressure when they were transferred to* ARISTOCORT. One patient had required auxiliary antihypertensive drug therapy; over a nine-week period on ARISTOCORT, the pressure gradually fell from 206/100 to 136/79. In another case, the pressure slowly dropped from 205/105 to 154/86.

The number of cases in which these investigators tried ARISTOCORT in allergic rhinitis was not large enough to provide significant averages. However, the range of effective therapy was from 2 to 6 mg. per day. These strikingly low daily doses resulted in control of all signs and symptoms.

Schwartz[3] treated 30 patients with chronic, intractable bronchial asthma. At an average daily dose of 7 mg., he reported "good to excellent" results in all but one. Spies,[4] Barach[5] and Segal,[6] reported similar results at average daily maintenance doses of 4 to 10 mg. of ARISTOCORT.

Dosage and course of therapy

The initial dosage range recommended is 8 to 14 mg. of ARISTOCORT daily. Although a rare, very severe case may require more than this on the first day of therapy, these dosages will usually result in prompt alleviation of dyspnea, wheezing and cyanosis. Patients are soon able to carry out a normal span of daily activity.

The maintenance level is arrived at by reduction of the total daily dose every three days in decrements of 2 mg.; in the over-all series, the average daily dose for bronchial asthma is approximately 8 to 10 mg. and for allergic rhinitis, 2 to 6 mg. per day. All total daily doses should be divided into four parts and given with meals and at bedtime. As in every condition where corticosteroids are employed, each patient's treatment should be individualized and the maintenance arrived at by careful titration against signs and symptoms of disease.

Patients with chronic bronchial asthma may require steroid therapy for several months. And since asthma may be associated with cardiac disease, especially in the older age groups, ARISTOCORT is particularly useful because of its ability to cause excretion of sodium and water.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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1. Sherwood, H., and Cooke, R. A.: J. Allergy 28:97, 1957. 2. Sherwood, H., and Cooke, R. A.: Personal Communication. 3. Schwartz, E.: Personal Communication. 4. Spies, T. D.: Personal Communication. 5. Barach, A. L.: Personal Communication. 6. Segal, M. S.: Personal Communication.

Lederle

The Promise of Aristocort

in Nephrotic Syndrome

◊ *Fourteen patients with the nephrotic syndrome have been treated with* ARISTOCORT *for continuous periods of up to six weeks.*

Results of treatment

Hellman and associates[1,2] noted that ARISTOCORT, because of its favorable electrolyte effects, may well be the most desirable steroid to date in treatment of the nephrotic syndrome. However, thus far its use has been reported in only 14 children, of whom 8 had a complete diuresis and disappearance of all abnormal chemical findings. Four of the patients had diuresis, but continued to show some abnormal chemical findings, while two patients with signs of chronic renal disease failed to respond.

Dosage and course of therapy

In order to produce maximal response, 20 mg. should be given daily until diuresis occurs. The dose should then be decreased gradually and maintained around 10 mg. a day. After the patient has been in remission for some time, it may be advisable to diminish the dose gradually and discontinue ARISTOCORT.

in Pulmonary Emphysema and Fibrosis

◊ *Eleven patients with pulmonary emphysema and/or fibrosis were treated with* ARISTOCORT *for continuous periods of over two months.*

Results of treatment

Only small series of cases observed by Barach,[3] Segal,[4] and Cooke,[5] are available. Barach treated patients who were not adequately controlled by prednisone, with the same dose of ARISTOCORT with significant improvement.

Dosage and course of therapy

The initial suppressive dose range recommended is 10-14 mg. daily. Frequently, there is a prompt decrease in cyanosis and dyspnea, with increase in vital capacity.

The average maintenance dose level was 8 mg. a day. If it is desired to maintain a patient on continuous therapy for some months, dosages as low as 2 mg. a day have been successful. All decreases in dosage should be gradual and at a rate of 2 mg. decrements in total daily amount, every two to four days. The daily dosage is divided into four parts and given with meals and at bedtime.



in Neoplastic Diseases

◊ *Forty-four children and adults have been given* ARISTOCORT *for palliative treatment of acute leukemia, chronic lymphatic leukemia, lymphosarcoma, lympholeukosarcoma and Hodgkin's disease.*

Results of treatment

Farber[6] has treated 22 children with acute leukemia for an average of three weeks. Of the 17 observed long enough to judge the efficacy of the medication, he rated five as excellent, three as good, two as fair and seven as poor responses.

Hellman and associates[7] gave ARISTOCORT to a group of patients with the various lymphomas in doses of 40 to 50 mg. a day—occasionally up to 100 milligrams. Treatment was continued in some cases for 17 weeks. Response was classified as good for the palliative purposes for which the drug was given.

Dosage and course of therapy

Massive initial suppressive doses of 40 to 50 mg. per day in children (1 mg./kg./day) and up to 100 mg. a day in adults have been administered.

Responses to any specific dosage in these conditions vary so widely that only a general dosage range can be indicated. Treatment must be individualized; rate of reduction in dosage and determination of maintenance levels cannot be categorized.

Miscellaneous

Patients with various other diseases have been treated by several clinical investigators. These include patients with osteoarthritis, acute bursitis, rheumatic fever, spondylitis, other "collagen-vascular" diseases (dermatomyositis, etc.), thrombocytopenic purpura, chronic eosinophilia, hemolytic anemia, diuretic-resistant congestive heart failures, and adrenogenital syndrome.

There have not been sufficient patients in any of the above categories to permit definitive treatment schedules to be finally established for ARISTOCORT. Additional studies are now in progress and physicians desiring information on any of these diseases are requested to write to Lederle Laboratories, Pearl River, New York for available data.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Inflammatory and Allergic Skin Diseases

◊ *Over 200 patients with allergic and inflammatory skin diseases (including psoriasis, atopic dermatitis, exfoliative dermatitis, pemphigus, dermatitis herpetiformis, eczematoid dermatitis, contact dermatitis and angioneurotic edema) have been treated continuously with* ARISTOCORT *for periods of up to eight months.*

Results of treatment

Rein and associates[1] treated 26 patients with severe dermatitis. Twenty-four had been on prednisone when changed to ARISTOCORT. While some had found satisfactory symptomatic relief, others had also developed side effects—moon face, buffalo hump, increased appetite with excessive weight increases and gastro-intestinal disturbances.

These investigators determined the equivalent dosage of ARISTOCORT to be approximately two-thirds that required to control symptoms on the previous corticosteroid. Thirteen of the 26, who had developed moon face, noted either an actual decrease or no further increase when transferred to ARISTOCORT. In addition: *Voracious appetites disappeared, with loss of weight in 11 patients; there was no elevation in blood pressure, and no necessity to restrict sodium or administer supplemental potassium.* Sherwood and Cooke,[2] and Shelley and Pillsbury[3] obtained similar results in allied disorders.

Hollander[4] first observed that ARISTOCORT appears to have striking affinity for the skin and great activity in controlling such diseases as psoriasis, for which other corticosteroids have been indifferently effective. Shelley and Pillsbury,[3] in 50 cases of acute extending psoriasis found that over 60 per cent were markedly improved.

Dosage and course of therapy

The recommended initial suppressive dose range is 14 to 20 mg. per day. In very severe cases, temporary dosages up to 32 mg. a day have been successfully employed. Once lesions are suppressed, gradually reduce dose to the maintenance level—which may be as low as 2 mg. per day.

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in Disseminated Lupus Erythematosus

◊ *Forty patients with disseminated lupus erythematosus were treated with* ARISTOCORT *for continuous periods of up to nine months.*

Results of treatment

Patients have responded very promisingly to therapy. Dubois[1] has had the largest single experience (28 cases) with ARISTOCORT in the treatment of this disease. He reported 25 of the 28 responded favorably.

Freyberg,[2] Hartung,[3] Hollander,[4] Spies,[5] and Segal,[6] each in smaller series of cases, reported similarly good therapeutic responses.

Dosage and course of therapy

The initial suppressive dose recommended is 20-30 mg. daily. Once the desired effect is achieved, the dose should be reduced gradually to maintenance levels (3 to 18 mg. per day).

In severely ill patients large doses may be required for several days in order to preserve life. Even on these large doses, edema and sodium retention have not occurred.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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references: 1. Strub, I. H.: Personal communication. 2. Ayd, F. J., Jr.: presented at Ohio Assembly of General Practice, 7th Annual Scientific Assembly, Columbus, September 18-19, 1957.

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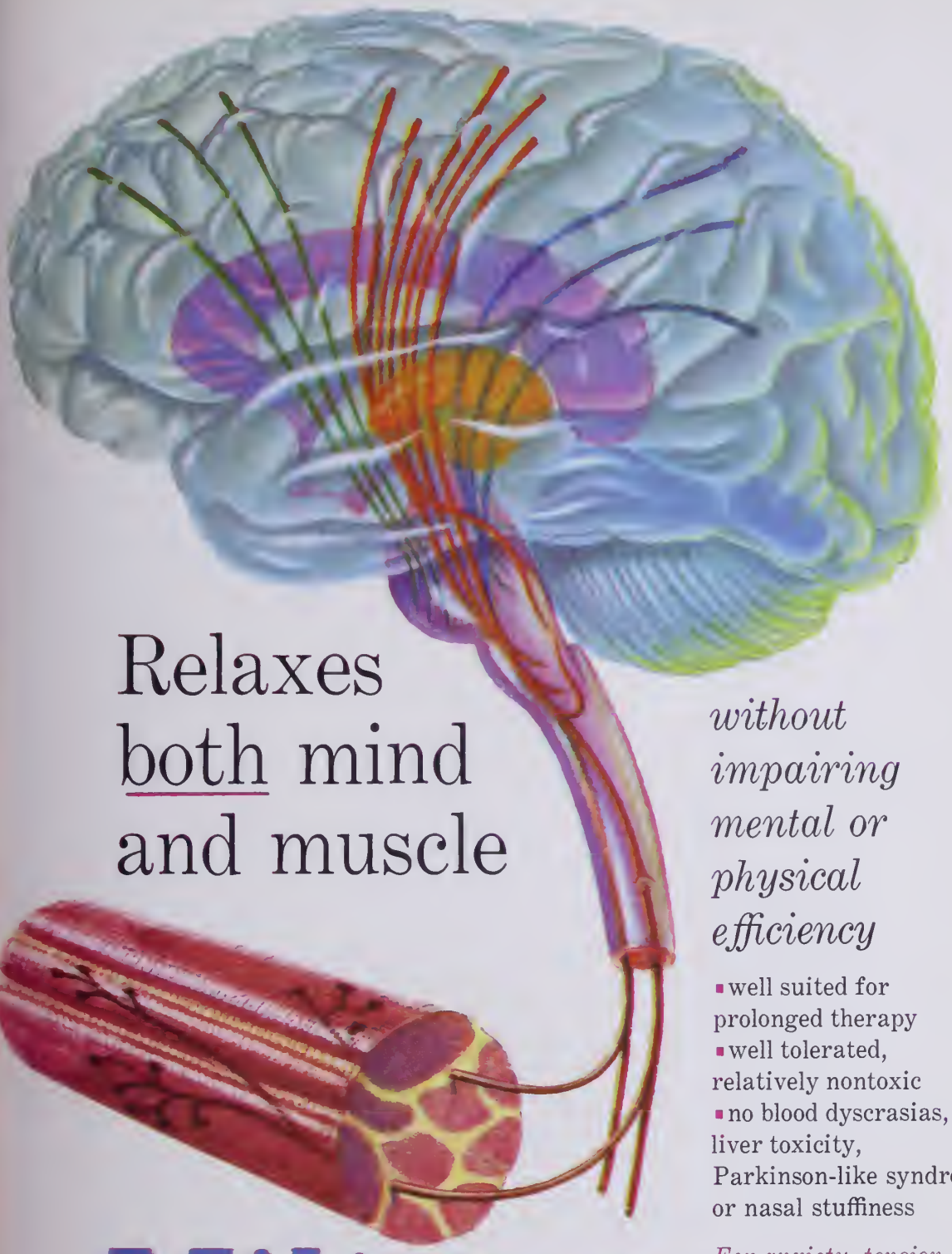
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1	12	13	2½	4	6	390
2	15	13	3	4½	6	480
3	17	9	3	5	5	520
4	20	11	3½	6	5	610
5	23	11	4	6½	5	700
6	26	10	4	7	5	760

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1	8	16	3	4	6	532
2	9	14	3	4½	5	576
3	10	15	3½	5	5	650
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6	13	22	4	7	5	768

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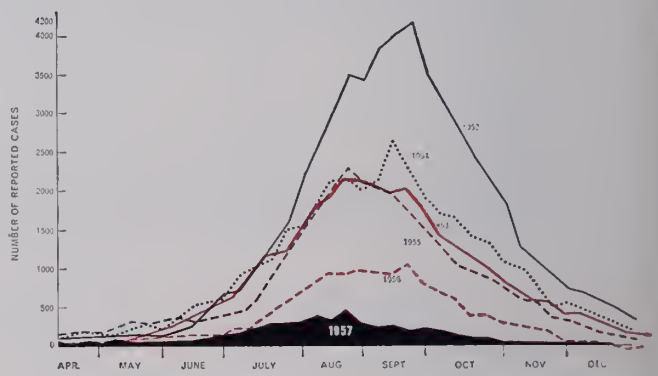
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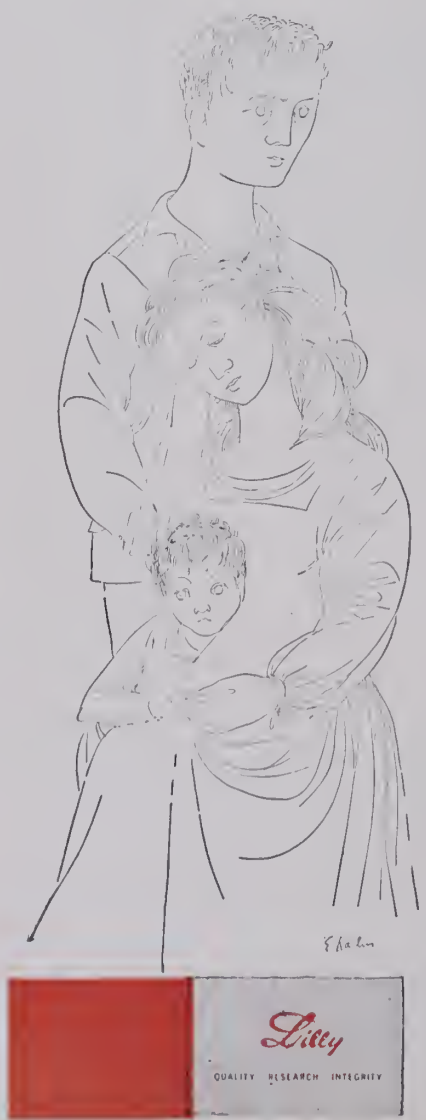
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1. *J. A. M. A.*, 165:21 (November 23), 1957.
2. *Department of Health, Education, and Welfare: News Release, October 10, 1957.*



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OPEN INTRACARDIAC REPAIR OF ATRIAL AND VENTRICULAR SEPTAL DEFECTS WITH THE AID OF EXTRACORPOREAL CIRCULATION

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New Orleans

Surgical procedures within the chambers of the heart have been made possible by the development of mechanical heart-lung systems. Gibbon [4] pioneered in the field of extracorporeal circulation, and successful application of intracardiac surgery using the heart-lung apparatuses were reported by Gibbon [4] and Dodrill [3]. The epochal reports of Lillehei and associates [6,7] and of Kirklin and co-workers [5] demonstrated conclusively that mechanical extracorporeal circuits could be used effectively for intracardiac surgical procedures.

Since August 1956, 24 patients on the Tulane Surgical Service at Charity Hospital and Touro Infirmary have been operated upon with the aid of a heart-lung apparatus (Figure 1). Among these patients were 14 with atrial septal defects, 7 with ventricular septal defects, 2 with pulmonary stenosis and atrial septal defects, and 1 with aortic insufficiency. This report is concerned with a review of the pertinent features of atrial and ventricular septal defects and an analysis of our experience with these anomalies in 23 cases.

PATHOLOGY

Among atrial defects the foramen secundum type occurs most commonly, and such defects are due to failure of the septum secundum to cover completely the developmental opening in the septum primum. These defects are usually high and posterior in the septum, vary considerably in size, and at times may be cribriform.

A persistent ostium primum is a result of failure of fusion between the septum primum and the endocardial cushions. Such defects lie just above the atrioventricular ring. The endocardial cushions are involved in the formation of the atrioventricular valves and the ventricular septum, and abnormalities of these valves and the membranous ventricular septum are not uncommon in association with a persistent ostium primum. Thus, this defect may occur alone, in combination with clefts in the A-V valves (partial atrioventricular canal), or it may be associated with abnormalities of the A-V valves and a defect of the membranous ventricular septum (complete atrioventricular canal).

Abnormalities of pulmonary venous drainage are occasionally associated with atrial septal defects. The pulmonary veins arise

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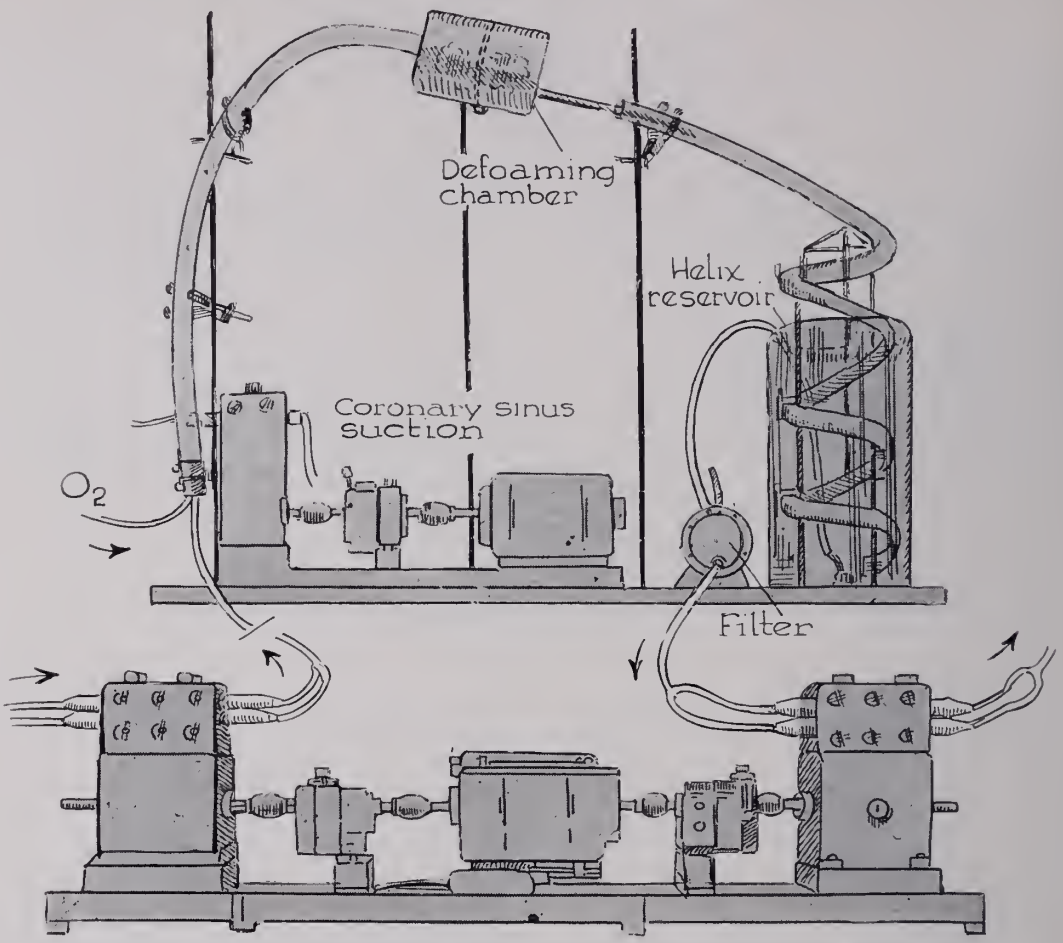


Figure 1.—Diagram of a bubble-oxygenator system of the DeWall type.

from a primary venous plexus which drains the lung buds. The common pulmonary vein eventually becomes incorporated into the posterior left atrial wall. As a result of this developmental feature a variety of abnormalities of pulmonary venous drainage may occur. If all the veins insert to the right of the septum secundum, the pulmonary venous blood will drain into the right atrium, a situation which constitutes total anomalous venous return. Partial anomalous venous return occurs when one or more of the pulmonary veins enters the vena cavae or other systemic veins.

Ventricular septal defects occur in a variety of locations and are not always closely correlated with embryologic development. Defects of the muscular septum are usually ventrally placed and may occur in the right ventricular outflow tract or toward the apex. A majority of ventricular septal defects, however, occur in the area of the membranous septum as a result of failure of the endocardial cushions or the bulbar ridges to develop. These defects occur high beneath the septal leaflet of the tricuspid valve and are usually oval in shape, with the long axis approximately parallel to the atrioventricular rings. Often the superior portion of the defect encroaches upon the aortic ring, and occasionally the aortic cusps may project below the upper margin of the defect, thereby constituting a hazard during repair.

For reasons that are not entirely clear, changes may develop eventually in the pulmonary arterioles as a result of the physiologic alterations produced by atrial and ventricular septal defects. Intimal proliferation and medial hypertrophy produce an increase in resistance to flow in the pulmonary circuit. As resistance to flow in-

creases, pulmonary artery pressure also increases and may reach such levels that a right-to-left shunt develops. The size and duration of the intracardiac shunt through a septal defect, the level of pulmonary artery pressure, the extent to which the fetal pulmonary arteriolar pattern persists, and the development of repeated small pulmonary emboli have all been incriminated as factors contributing to the development of pulmonary hypertension. In the case of ventricular septal defects, a rise in right ventricular pressure to a level approximating the left ventricular systolic pressure results in a right-to-left shunt and arterial unsaturation. This condition is known as the Eisenmenger complex.

In atrial septal defects the shunt is from left-to-right because the left atrial pressure is normally about twice as great as the right atrial pressure. As pulmonary arteriolar resistance increases, right ventricular pressures are elevated and tricuspid regurgitation may ensue. Eventually the right atrial pressure equals and exceeds the left atrial pressure, and reversal of flow with arterial unsaturation results. In general, patients with a persistent ostium primum develop pulmonary vascular changes and a right-to-left shunt earlier than patients with secundum defects.

CLINICAL MANIFESTATIONS

The clinical course in patients with atrial septal defects may vary considerably. Often there is a history of a heart murmur in an otherwise healthy individual. These patients are usually poorly developed but rarely cyanotic.

Infrequently, a child with an atrial septal defect will develop pulmonary hypertension early, with heart failure and cyanosis. As a rule, however, progression of the arteriolar changes is slow and symptoms are insidious in onset. Most patients develop symptoms by the age of 20, and the most common symptom is incapacity on exertion. From this age on, pulmonary arteriolar resistance increases and symptoms progress more rapidly. Paroxysmal tachycardia, dyspnea on exertion, and pneumonitis become frequent. As pulmonary hypertension increases a right-to-left shunt develops only during exercise or during bouts of paroxysmal tachycardia. Later the reversed shunt persists and pulmonary emboli are not uncommon.

The murmur of atrial septal defect is usually holosystolic, moderately loud and blowing. It is heard best in the second or third intercoastal space along the left sternal border. The pulmonary second sound is accentuated and usually widely split. In addition, there may be a high pitched, early diastolic murmur at the pulmonary area or along the left sternal border, produced by pulmonic insufficiency. A low pitched mid-diastolic rumble, heard laterally toward the apex is usually due to relative tricuspid stenosis. The syndrome of Lutembacher, consisting of true mitral stenosis and an atrial septal defect, is rare in our experience, although thickening of the mitral leaflets is not uncommon. The murmur of mitral insufficiency strongly suggests the presence of a persistent ostium primum.

The electrocardiogram usually shows either right bundle branch delay or block, or right ventricular hypertrophy. Frequently, the two cannot be distinguished, and indeed, both may be present. In patients with persistent ostium primum there is an associated left axis deviation, and there may be electrocardiographic evidence of left ventricular hypertrophy. Varying degrees of atrioventricular block, atrial flutter, and fibrillation may be present. Roentgenographically, there is moderate to marked cardiac enlargement, although generally poor correlation exists between heart size and the degree of shunt in children and young adults. Later, as heart failure develops from increasing pulmonary hypertension, cardiac enlargement increases. The pulmonary conus is prominent in the presence of atrial septal defect, and pulsation in the pulmonary vessels is evident. The right atrium and ventricle are large, whereas the left atrium, left ventricle and aorta are small. In the left anterior oblique projection a large right ventricle may displace the left ventricle posteriorly, producing the impression of enlargement of both ventricular chambers. Occasionally, widening of the superior mediastinum is a clue to the

presence of anomalous pulmonary venous drainage.

The clinical findings in ventricular septal defects show more variation than those of atrial septal defects. Thus, patients with relatively small defects (Roger's disease) usually have a loud, harsh, rasping holosystolic murmur along the lower left sternal border, with mild to moderate accentuation of the pulmonary second sound. This sound is almost always split. Such patients are usually asymptomatic and show only slight to moderate cardiac enlargement. Aside from the danger of bacterial endocarditis, patients with small, isolated ventricular septal defects may suffer no ill effects of the anomaly. Frequently, however, children with large ventricular septal defects develop symptoms early in life. Their growth is retarded, they develop pulmonary hypertension early and suffer from symptoms of heart failure. On examination a precordial bulge is evident. There is a loud, harsh systolic murmur along the left sternal border with an accentuated pulmonary second sound which is split and frequently associated with a high-pitched diastolic murmur. As with atrial septal defects, when the pressure of the two ventricles approximates one another, reversal of flow and cyanosis ensue.

The electrocardiogram in the patient with a small, asymptomatic ventricular septal defect is usually normal, although a slight degree of left ventricular hypertrophy may be observed. In patients with larger defects there is obvious left ventricular hypertrophy and with still larger defects there may be combined right and left ventricular hypertrophy. In the presence of pulmonary hypertension and reversal of flow, right ventricular hypertrophy becomes predominant. Varying degrees of atrioventricular block may be present.

Roentgenographically, there is good correlation between heart size and size of the shunt. Thus, with the small ventricular septal defect heart size is usually normal; whereas in the larger defects, the heart shows moderate or marked enlargement. The pulmonary conus is prominent, and the pulmonary vasculature is increased. Slight left atrial enlargement is often noted on barium swallow.

CARDIAC CATHETERIZATION

The diagnosis of atrial and ventricular septal defects can be established by cardiac catheterization (Table 1). Frequently, the catheter can be passed through an atrial septal defect into the left atrium. Considerable care should be exercised in "exploring" the right border of the right atrium for anomalous pulmonary veins. Although it is difficult to be certain that the cathe-

TABLE 1
FINDINGS IN CARDIAC CATHETERIZATION IN TYPICAL CASES OF VENTRICULAR AND ATRIAL SEPTAL DEFECTS

Source	Ventricular Septal Defect		Atrial Septal Defect			
			Primum		Secundum	
	O_2 vol. %	Pressure mm Hg	O_2 vol. %	Pressure mm Hg	O_2 vol. %	Pressure mm Hg
P.A.	16.28	48/18	17.9	32/16	14.9	30/10
R.V.	High 16.5 Mid. 17.5 Low 16.5	Rest 48-64/10 Exer. 94/8	17.9	Rest 32/9 Exer. 44-58/10	14.9	58/15
R.A.	14.0	7.2	High 15.7 Mid. 16.3 Low 17.9	10	High 14.3 Mid. 14.6 Low 14.8	15
S.V.C.	14.1	7.2	13.8	10	11.5	15
Left to Right Shunt	App. Equal to Systemic Venous Return		App. 5 Times Systemic Venous Return		2-3.3 Times Systemic Blood Flow	

ter did not first pass through the septal defect, the correct diagnosis usually can be suspected. Particular attention should be given to the superior caval and left innominate vein region where anomalous left pulmonary veins commonly enter. Indications of their presence may be obtained by comparing the superior vena caval blood with arterial samples at the time of withdrawal. The diagnosis and location of this type of anomalous pulmonary venous drainage is not difficult and is of considerable importance to the surgeon. Anomalous drainage into the inferior vena cava is less common but can be similarly detected.

The diagnosis of persistent ostium primum can be confirmed at catheterization. With manipulation the catheter, nearing the tricuspid valve, will pass obliquely into the left ventricle with a characteristic configuration. By carefully observing the pressure tracing as the catheter is withdrawn, and comparing ventricular, arterial and atrial blood samples, one can demonstrate that the catheter has passed from the right atrium directly into the left ventricle. Left atrial pressure tracings may indicate the presence of considerable mitral regurgitation.

Demonstration of ventricular septal defects by catheterization may be difficult. The presence of a large, patent ductus arteriosus with pulmonary hypertension and pulmonary insufficiency may present data similar to those of a large, high ventricular septal defect. Frequently, however, the catheter can be manipulated into the aorta. Careful withdrawal of the catheter, to demonstrate that the route was from the right ventricle into the pulmonary artery and then into the aorta is necessary to establish the presence of a patent ductus under these circumstances. Should the catheter pass from the right ventricle to the aorta without traversing the pulmonary artery as evidenced by pressure tracings, the diagnosis of ventricular septal defect is established. Generally, when the two are associated, most or all of the ventricular blood samples reveal an increase in oxygen content over that of the right atrium. With pulmonary regurgitation and patent ductus arteriosus only the sample obtained immediately on the ventricular side of the pulmonary valve shows an increase in oxygen content over the other right ventricular samples.

Frequently, in ventricular septal defects and to a lesser extent in atrial defects, an intermediate pressure zone is found between the pulmonary artery and right ventricular outflow tract. This zone has a systolic pressure equal to the pulmonic, and a diastolic pressure equal to that in the right ventricle. The systolic, pulmonary artery-to-right ventricle gradient may be as much as 50 to 90 mm/Hg. Indeed, we have seen this gradient increase significantly within one to four years. At operation, with the heart temporarily arrested, an infundibular zone may not be encountered although there may be slight hypertrophy of the crista supraventricularis. This suggests that the hypertrophy is producing physiologic derangement which is not evident anatomically in the arrested atonic heart. During systole, this muscular band contracts over the outflow tract producing stenosis and a systolic gradient within the outflow tract, but relaxes during diastole leaving a uniform diastolic pressure. Experience has indicated that this hypertrophy does not require surgical correction, but regresses spontaneously if the ventricular defect is properly repaired.

OPERATIVE TECHNIQUES

After adequate preanesthetic medication, anesthesia is induced with intravenous barbiturate and succinyl choline or, in the case of small children, cyclopropane and ether. There are two factors associated with open heart operations which influence the types of anesthetic agents employed. The first of these is the use of electronic instruments in the operating room, none of which is explosion-proof. Therefore, after an endotracheal tube has been passed a nonexplosive agent must be used. The second factor is the escape of anesthetic gases from the blood as it passes through the oxygenator. Thus, in order to keep the patient anesthetized and immobile during perfusion, it is necessary to employ a nonvolatile agent.

For repair of atrial and ventricular septal defects the patient is placed in a supine

position with a small sand bag under the right shoulder and hip (Figures 2 and 3a). A curved, submammary incision is made on the right and extended across the sternum at the level of the fourth intercostal space. The right pleural cavity is entered through

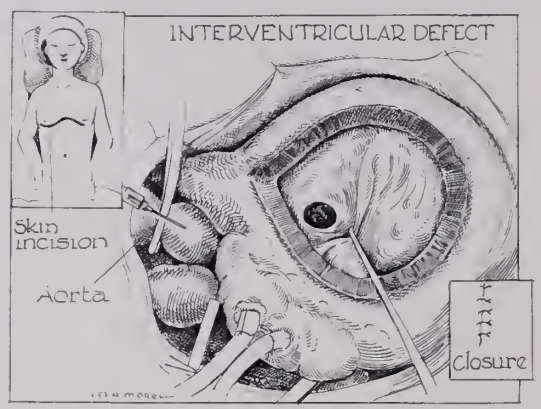


Figure 2.—Inset shows position and skin incision for repair of ventricular septal defect. Diagram shows ventricular septal defect as viewed through a right ventriculotomy. The septal leaflet of the tricuspid valve is retracted to demonstrate the defect.

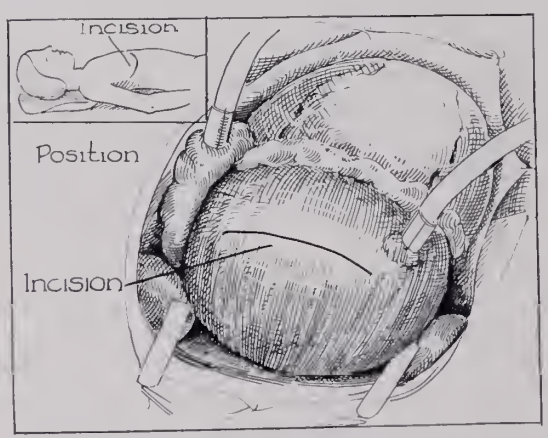


Figure 3a.—Diagrams showing position of skin incision and right atriotomy in case of atrial septal defect. Catheters are shown in the superior and inferior vena cavae.

the fourth intercostal space and after ligation and division of the right and left internal mammary arteries the sternum is transected. This incision is adequate for repair of atrial septal defects (Figure 3a), but for repair of ventricular septal defects it is necessary to extend the incision in the fourth intercostal space to the left anterior axillary line (Figure 2).

The pericardium is opened widely to expose the right atrial appendage, right lateral wall of the right atrium and the anterior surface of the right ventricle. A purse-string suture is passed about the base of the atrial appendage and after applying a noncrushing clamp the appendage is opened. Digital exploration is performed and a systematic examination is made of the superior and inferior vena caval orifices, the atrial septum, the coronary sinus, and the tricuspid valve. If an atrial septal defect is present its size and location are determined; then the exploring finger is passed through the defect into the left atrium, and the mitral valve is digitally examined. The finger is then passed through the tricuspid valve and the ventricular septum explored for the presence of defects. Finally the right ventricular outflow tract is palpated. Upon completion of exploration the finger is withdrawn and the occluding clamp reapplied.

When the diagnosis has been confirmed preparations are made for attaching the patient to the heart-lung apparatus. Heparin is administered intravenously in a dose of 3 mg./kg. body weight. The vena cavae are isolated at their juncture with the right atrium and tapes are passed about them. Both common femoral arteries are exposed through oblique incisions in the groin and cannulated for arterial return from the pump-oxygenator and for continuous measurement of arterial blood pressure. The tip of the right atrial appendage is excised and large plastic catheters are inserted through the appendage into the superior and inferior vena cavae (Figure 3a). Blood from the helix-reservoir passes through a stainless steel filter, through the arterial side of the pump, and is returned to the patient via the femoral artery. When the cannulas are properly placed and the extracorporeal circuit is primed with fresh, heparinized blood, perfusion is begun. The tapes about the cavae are then tightened to produce complete cardiac inflow occlusion. The atrium or ventricle is opened between traction sutures of silk.

In the case of atrial septal defects, the right atrium is opened parallel to the vena cava (Figure 3a). A specially designed

sucker is inserted into the atrium and is kept in the region of the coronary sinus to maintain a relatively bloodless field during operation. This blood is returned to the oxygenator. The atrial septal defect is identified and repair accomplished. Upon completion of closure of the defect the atrio-

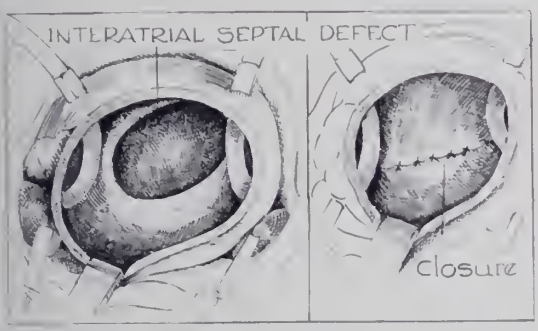


Figure 3b.—Diagrams showing location of the atrial septal defect and the method of closure.

tomy is closed partially, the caval tapes are released so that the right atrium fills with blood and a non-crushing clamp is then applied to the unclosed portion of the atrial wound. In this way closure of the atrium can be completed as perfusion is gradually discontinued.

In cases of ventricular septal defects, temporary cardiac arrest is desirable in order to define and repair the defect. For this purpose 25 per cent potassium citrate is used; 8 cc. of this agent is diluted in 42 cc. of oxygenated blood. An occluding clamp is placed upon the ascending aorta about 3 cm. above the coronary arteries, and the potassium solution is rapidly injected proximal to the occluding clamp. Complete cardiac arrest takes place within thirty to sixty seconds. When the heart is stopped the right ventricle is opened to the right of and parallel to the interventricular septum, the incision extending into the ventricular outflow tract. With the right ventricle opened widely, the defect is identified and closure accomplished either by direct suture or by use of an Ivalon patch. The occluding clamp is then removed from the aorta, thus perfusing the coronary arteries and washing out the potassium citrate solution remaining in the myocardium. Cardiac action usually begins promptly. With the right ventricle filled with blood the ventricular wound is closed with two continuous sutures of silk.

When the cardiotomy is closed and the heart is beating vigorously protamine sulfate is administered in a dose equivalent to that of heparin given at the beginning of operation. The catheters are removed from the cavae and from the femoral arteries and the arterial wounds are repaired.

ANALYSIS OF CASES

There were 16 patients with defects of the atrial septum. In 6 of the cases the atrial septal defect was central and ranged from 3 to 6 cm. in diameter. There were 5 instances of posterior defects with pseudo-anomalous pulmonary venous drainage. In all these cases the defects were large and in most instances constituted a single atrium. In 2 cases an atrial septal defect was associated with true anomolous pulmonary venous drainage. In one of these the pulmonary veins entered the right lateral wall of the right atrium and there was a large posterior defect. In the other case, a central septal defect was associated with drainage of the right pulmonary veins into the superior vena cava and right atrium. There were 3 instances of persistent ostium primum. Two were associated with clefts in the septal leaflets of the mitral and tricuspid valves and the third was associated with complete atrioventricular canal. An additional two patients had atrial septal defects and pulmonic valvular stenosis. All of these patients underwent cardiac catheterization prior to operation and in each instance the diagnosis was correctly established. That is, the presence of an atrial septal defect was determined, and the presence of additional malformations such as anomalous pulmonary venous drainage, and persistent ostium primum or pulmonic stenosis were likewise established.

Among the 7 ventricular septal defects 1 was acquired as a result of a stab wound of the heart and 6 were congenital in origin. There were two defects in the right ventricular outflow tract, one of which was low in the muscular portion of the septum and 4 were defects in the membranous septum. Of the defects in the right ventricular outflow tract, one was just distal to an hy-

pertrophied crista supraventricularis. One of the patients with a defect of the membranous septum had undergone operation for closure of a patent ductus arteriosus two years previously. The remaining 5 ventricular septal defects were unassociated with other cardiac anomalies.

The duration of cardiac-pulmonary bypass varied from ten to thirty-five minutes, with an average of fifteen minutes for the 21 cases. The length of time the heart was opened, in the case of atrial septal defects, or was temporarily arrested, in the case of ventricular septal defects, or was temporarily arrested, in the case of ventricular septal defects, varied from eight to thirty-three minutes with an average of thirteen minutes.

The rate of perfusion varied considerably, but in every instance an attempt was made to establish extracorporeal circulation at the level of maximal venous return. That is, the speed of the pump was gradually increased until the cavae were being adequately emptied. Perfusion was maintained at this rate by the addition of blood administered intravenously. In effect, this technic resulted in maintenance of an apparently normal central venous pressure, although this pressure was not actually measured. Furthermore, an attempt was made to maintain a central arterial blood pressure above 50 to 60 mm. of mercury systolic. In no instance was the pump set at a predetermined rate on the basis of body weight or other factors.

RESULTS

Among the 24 patients operated upon there were 2 deaths in the early postoperative period. (Table 2). One of the deaths followed repair of a large atrial septal defect in a 37 year old woman who had pulmonary hypertension and had been operated upon two months previously, at which time repair of the defect by the Sondergaard technic was abandoned. This patient reacted from anesthesia, but with obvious central nervous system damage. During the next four days her condition steadily deteriorated, with the development of generalized convulsions, hyperthermia, and death. At necropsy the atrial septal defect was adequately repaired and there were no abnormalties noted in the brain to account for the symptoms occurring after operation and terminating in death. The other fatality occurred following repair of a ventricular septal defect in a 17 year old boy. This patient had a corrected transposition with a large defect in the membranous ventricular septum which was easily repaired during temporary cardiac arrest. His condition immediately after operation appeared good, but twelve hours later he died suddenly. Complete heart block had been present prior to operation and persisted after operation, and it was the consensus that death had been due to some additional disturbance in cardiac conduction. Permission for a partial necropsy was granted and at this examination the operative findings were confirmed. In addition, the left ventricular chamber was severely deformed and consisted essentially of two chambers, one of which communicated with the left atrium through a severely deformed mitral valve. This chamber in turn communicated with a second left ventricular cavity which emptied through the ventricular septal defect into the pulmonary artery, the latter being abnormally placed because of the transposition anomaly. In reality, these anomalies were incorrectable by present technics.

TABLE 2
OVERALL RESULTS IN THE SERIES OF PATIENTS WITH INTRACARDIAC DEFECTS TREATED BY DIRECT REPAIR WITH THE AID OF EXTRACORPOREAL CIRCULATION

Abnormality	Number of Cases	Survivals
Atrial septal defect:		
Secundum	11	10
Primum	3	3
With pulmonary stenosis	2	2
Ventricular septal defect	7	6
Aortic insufficiency	1	1
Total	24	22

Complications followng operation were mainly pulmonary, consisting of patchy atelectasis, fever and cough lasting three or four days. The symptoms gradually subsided, the patients becoming afebrile about the seventh day. Because of the frequency

with which this complication was encountered, patient No. 15 was given aqueous penicillin intravenously in a dose of 20 million units per day for three days. The subsidence of fever and other symptoms was so gratifying that this measure was instituted for all subsequent cases. From this small experience, it appears that the administration of large doses of penicillin intravenously during the early period after operation significantly reduces the severity, if not the incidence, of pulmonary complications. The second complication encountered was central nervous system disturbances, similar to that noted in one of the patients who succumbed. These disturbances occurred in 2 patients, and consisted of decerebrate rigidity in one lasting about three weeks and ending in complete recovery of the patient, and mild cerebral irritability in the other. In the latter there were no gross neurologic disturbances but the patient appeared less alert and was poorly orientated. These symptoms disappeared within four or five days after operation. The etiology of these central nervous system symptoms is not entirely clear. Gas or fibrin emboli, temporary cerebral anoxia and metabolic abnormalities have been suggested.

There was one late death occurring four months after closure of a ventricular septal defect. This patient had complete heart block prior to operation, which persisted after operation. His death occurred suddenly while at work and an autopsy was not obtained.

The remaining 21 patients are living and clinically well. It is planned to recatheterize all of these patients within the next year in order to determine the completeness of repair of the septal defects and the extent to which cardiac hemodynamics have been altered by operation.

CASE REPORTS

The following cases illustrate the types of atrial and ventricular defects encountered, their clinical manifestations, data obtained at cardiac catheterization, and the technics employed for repair:

B. J. D., an asymptomatic 9 year old white boy was known to have a cardiac murmur since age 6 months. He had no symptoms referable to a cardiac lesion, however, and growth and development had been normal.

Examination revealed a friendly, strong-looking boy of somewhat slight configuration. Pertinent findings were confined to the thorax where a grade II systolic murmur was heard to the left of the sternum in the third intercostal space. The pulmonary second sound was split. The heart was not grossly enlarged.

Chest roentgenograms showed a prominent pulmonary artery, right atrial and right ventricular enlargement and increased vascularity of the lungs. A large atrial septal defect with pulmonary blood flow three times systemic flow was demonstrated by cardiac catheterization (Table 3). Right ventricular pressure rose to 44 mm. Hg. with exercise. The electrocardiogram was within normal limits.

On August 2, 1957, operation was performed at Touro Infirmary with the aid of extracorporeal circulation. A defect in the atrial septum 5.0 cm. in diameter (secundum type) was closed with two continuous silk sutures. (Fig. 3a & b). His course after operation was uneventful.

B. B., a 14 year old girl had experienced ex-

TABLE 3
TABULATION OF DATA FROM CARDIAC CATHETERIZATION IN FOUR REPRESENTATIVE CASES. CLINICAL HISTORIES OF THESE PATIENTS APPEAR UNDER "CASE REPORTS"

Defect	A.D. Ventricular		A.H. Ventricular		B.J.D. Atrial		B.B. Atrial	
Source	O_2 vol. %	Pressure mm Hg	O_2 vol. %	Pressure mm Hg	O_2 vol. %	Pressure mm Hg	O_2 vol. %	Pressure mm Hg
P.A.	14.5	72/27	9.5	35/12	14.6	28/16	14.3	40 20
R.V.	13.8	72/4-8	9.6	44/12	14.9	30/8	14.6	44 14
R.A.	10.3	7/4	7.3	12	15.6	8	14.6	10
S.V.C.	10.2		6.6		10.3		9.5	
Left to Right Shunt Volume	Not Calculated		Not Determined		4 x Systemic Flow		2.3 - 4.4 x Systemic Flow	

ertional dyspnea throughout childhood. When she was 9 years old a diagnosis of congenital heart disease was made on the basis of a murmur and recurrent episodes of dyspnea. One year before admission she had a single episode of paroxysmal nocturnal dyspnea. Since then she had also noted recurrent pedal edema. Treatment with digitalis was initiated then and continued up to the time of admission. There was a history of chronic otitis media since early childhood.

Examination disclosed a normally developed, slightly obese 14 year old girl in no distress. Significant physical findings consisted of bilateral, chronic, otitis media with perforations of the tympanic membranes and abnormal heart sounds. The pulmonary second sound was loud but not split. A grade II systolic murmur was heard best along the left sternal border in the 3rd and 4th intercostal spaces. The heart was not enlarged.

Roentgenograms of the chest showed only some fullness in the region of the pulmonary artery. The electrocardiogram suggested right ventricular hypertrophy. Cardiac catheterization established the diagnosis of anomalous drainage of the veins of the right lung, an atrial septal defect, and hypertension in the right ventricle on exercise. (Table 3).

At operation on August 19, 1957, a centrally placed ostium secundum was identified. (Fig. 4).

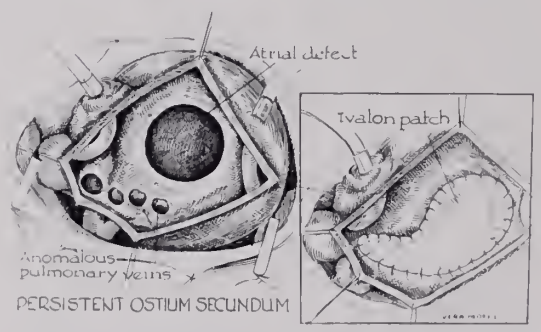


Figure 4.—Diagram of case with atrial septal defect and anomalous insertion of the pulmonary veins into the right atrium. An ivalon patch was sutured over the defect and to the right of the pulmonary veins, thereby diverting pulmonary venous flow into the left atrium.

In addition all the veins from the right lung entered the right atrium. One of these veins entered the superior vena cava. A patch of polyvinyl sponge was sutured to the margins of the septal defect and to the atrial septum so that venous drainage from the right lung was shunted through the defect into the left atrium.

Her course after operation was uneventful and she was discharged on the nineteenth day.

A. H., a 13 year old white girl was admitted from Lallie Kemp Charity Hospital on July 30, 1957. She had been known to have "heart trouble" since birth. During early childhood she developed numerous respiratory infections. While attending school dyspnea developed when she attempted to keep up with her schoolmates in sports. If she persisted beyond the appearance of dyspnea, she would feel "tired" and mildly dyspneic for two to three days thereafter.

Examination revealed normal growth and development. Aside from extensive dental caries and infection abnormal physical signs were confined to the thorax. A powerful systolic thrill was felt over the precardium and there was a very loud, harsh systolic murmur heard best along the left sternal border. This murmur could also be heard in the neck and over the left hemithorax posteriorly. The pulmonary second sound was loud and split.

Roentgenographic examination revealed right and left ventricular enlargement, prominence of the pulmonary artery and engorged pulmonary vasculature. The electrocardiogram was compatible with left ventricular hypertrophy and there was left axis deviation.

Cardiac catheterization, performed on August 9, 1957, was not entirely satisfactory because of a moderate anemia. A definite left-to-right shunt probably at both the atrial and ventricular levels was demonstrated as well as moderate pulmonary hypertension (Table 3). Catheterization data suggested a persistent ostium primum and the electrocardiographic evidence of left ventricular hypertrophy indicated incompetence of the mitral valve.

On August 15, 1957, operation was performed with the aid of extracorporeal circulation. A persistent ostium primum and clefts in the anterior leaflets of the mitral and septal leaflet of the tricusped valves were found. (Fig. 5). The cleft

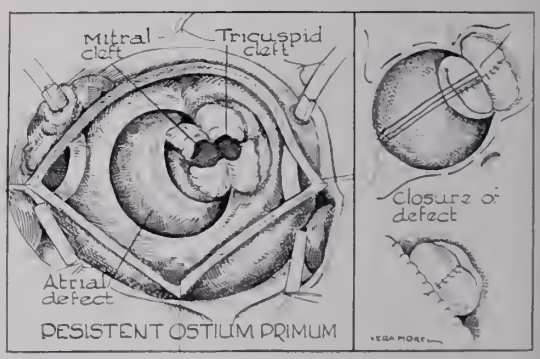


Figure 5.—Diagram showing the findings in a case of persistent ostium primum and atrioventricular canal. Clefts in the leaflets of the mitral and tricuspid valves were sutured, and the inferior edge of the atrial septum was sutured to the superior margin of the ventricular septum.

valves were repaired with three interrupted sutures and the atrial defect was then closed by direct coaptation of the edge of the defect above to the membranous interventricular septum below. The procedure was well tolerated.

The temperature rose to 105 degrees F. on the day of the operation and was ascribed to pneu-

monia involving the left lower lobe. The patient exhibited delirium and inappropriate behavior during this febrile episode. Large amounts of penicillin were infused intravenously (20 million units daily) and on August 18, 1957, bronchoscopy was carried out. This revealed no segmental or lobar bronchial obstruction. On August 23, 1957, she had a convulsion lasting five minutes. With return of temperature to normal levels her behavioral aberrations ceased and signs of pulmonary consolidation rapidly subsided. By the time of discharge from the hospital on September 6, 1957, she was asymptomatic.

A. D., a 9 year old girl from Monroe, Louisiana, had a history of significant cardiac disability from birth. When one year old she was found by her family doctor to have an enlarged heart and retarded growth. Cardiac catheterization at Charity Hospital, in 1953, disclosed a patent ductus arteriosus and ventricular septal defect. Secondary pulmonary hypertension and pulmonary regurgitation were also present. At this time the patient was in congestive heart failure. The ductus arteriosus was closed in April 1953, with improvement in her growth rate and cardiac status. In August 1956, she was again catheterized and was demonstrated to have ventricular septal defect with pulmonary hypertension (Table 3).

On examination at her present admission she was small for her age and weighed 42 pounds The right ventricle was enlarged and hyperactive as evidenced by precordial heaving. A systolic murmur was heard along the left sternal border. The only significant laboratory findings were roentgenographic evidence of cardiac enlargement (right and left ventricles) and plethoric lung fields. The electrocardiogram showed right and left ventricular hypertrophy.

On October 25, 1957, a defect in the ventricular septum was closed under direct vision with the aid of extracorporeal circulation and temporary cardiac arrest induced with potassium citrate. The defect measured 2.0 cm. in diameter and was located high in the membranous septum (Fig. 2).

Postoperatively incomplete heart block was present for several days then spontaneously disappeared. Recovery was without further incident.

COMMENT

The results obtained in this series of cases support the demonstration by others that direct repair of atrial and ventricular septal defects can be effectively and safely accomplished with the aid of extracorporeal circulation.

No attempt has been made to compare the bubble and vertical screen oxygenators. It appears that for periods up to thirty minutes, the care and preciseness with which perfusion and the operation itself are conducted are more important than the physical properties of the pump oxygenator. Certainly, within limits, the bubble oxygenator employed in this series is relatively simple to use. In addition, the operative technic required for proper closure of most atrial and ventricular septal defects is not nearly so difficult or exacting as technics employed for surgery of other organs, although considerable experience is essential for a proper anatomic orientation at operation. On the other hand, the team required to ensure proper function of this apparatus and to monitor certain physiologic variables during operation is sufficiently large to preclude the use of the heart-lung apparatus in the average community hospital.

In any new field indications for treatment must evolve gradually and criteria for operability must be constantly revised. In no field is this more in evidence than in cardiac surgery. Thus, with the introduction of closed methods of repairing atrial septal defects operation was indicated only for patients with disabling symptoms produced by a large intracardiac shunt. Development of open repair of atrial defects under hypothermia more clearly defined the indications for treatment and, in general, it was agreed that a left-to-right shunt at least three times the systemic blood flow warranted surgical therapy. Subsequent experience with the closure of atrial defects using a heart-lung apparatus has further clarified the problem of when to operate upon these patients. We now believe that an atrial septal defect constitutes a greater hazard than does its operative closure, provided the diagnosis is clearly evident and a measurable left-to-right shunt is present. Similarly, ventricular septal defects producing a significant left-to-right shunt probably should be repaired irrespective of the severity of symptoms. The presence of a large right-to-left shunt precludes operation for isolated atrial and ventricular septal defects.

SUMMARY

1. Twenty-three patients on the Tulane Surgical Services have undergone intracardiac repair of atrial and ventricular septal defects. There were 2 post-operative deaths.

2. Cardiac catheterization was performed in all patients, and the correct diagnosis was established in each case.

3. The increasing safety of intracardiac surgery warrants broadening the indications for operative treatment of septal defects. Such treatment is advised in all patients with significant left-to-right shunts through septal defects.

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MALIGNANT LYMPHOMAS AND LEUKEMIAS *

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A complicated classification of the malignant lymphomas adds little to our knowledge and is of practically no clinical significance. For the purpose of this discussion, I shall simply classify them as follows:

1. Giant follicular lymphoma
2. Lymphosarcoma
3. Reticulum cell sarcoma
4. Hodgkin's disease

GIANT FOLLICULAR LYMPHOMA

Giant follicular lymphoma, or Brill-Symmer's disease differs from the other lymphomas in its slowness of growth, its tendency to remain quiescent for longer periods of time, and the frequency with which it appears as a solitary lesion. Retroperitoneal lymph nodes are very commonly involved and, unlike lymphosarcoma, involvement of the gastrointestinal tract, or tonsils is quite infrequent. Because of the relatively benign course and very slow development, the disease is frequently rather far advanced when first seen. Histologically, there is a numerical and dimensional increase in the size of the lymph node follicles. The cells involved may be either of the lymphocytic cell or the reticulum cell type. The differentiation from hyperplasia of a node due to infection may be quite confusing, but the absence of phagocytosis and the involvement into the medullary portion of the node together with interfollicular immature cells showing mitotic figures are all evidence of neoplastic disease rather than infection. Eventually, in the advanced stages of the process, the architecture of the lymph node becomes obliterated and the histological structure is that of lymphosarcoma. The condition is remarkably radiation sensitive and the majority of patients live for five years. Survival for ten years and even longer is not infrequent.

LYMPHOSARCOMA

In lymphosarcoma of the lymphocytic cell type the predominant tumor cell is a small cell that is slightly larger than a small lymphocyte. On section the involved lymph nodes are replaced by yellowish gray homogenous cellular tumor. The architecture of the node is erased and the tumor characteristically grows in the surrounding loose perinodal tissues. Like all lymphomatous processes, lymphosarcoma exhibits great variation in the location and organs involved and no organ is exempt from attack. Lymphosarcoma is not

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necessarily a generalized disease in all cases. Many cases are seen which are apparently primary in the nasopharynx or in the tonsil and, from a standpoint of treatment and prognosis, behave as a localized disease offering a surprisingly good prognosis. Regato has reported 15 of 37 patients well and free of disease five years following radiation therapy for lymphosarcoma of the tonsil. Lymphosarcoma is oftentimes seen as a localized disease involving the gastrointestinal tract; particularly the stomach. Snoddy collected reports of 474 cases of lymphosarcoma of the stomach, of which 50 patients survived more than five years. Individual reports show a considerably better five year survival. However, when the disease process is generalized, long term survival of five years or more is possible in only 2 to 3 per cent of the cases and the majority of cases die within one year.

RETICULUM CELL SARCOMA

Reticulum cell sarcoma may involve any tissue of the body, but it seems to involve bone more often than do the other types of malignant lymphoma. The characteristic cell is considerably larger than in the case of the lymphocytic cell type of lymphosarcoma. The appearance of this tumor as a solitary bone lesion is not infrequent and in such cases the prognosis is relatively good. Coley has reported 40 per cent five year survivals in a series of 20 patients treated with radiation therapy. Reticulum cell sarcoma of bone usually begins with pain localized to the site of the disease. Local swelling occurs early and local heat is common. The tumor begins in the metaphysis of bone and extends to involve a large area of the diaphysis. In early cases there is only a mottled type of destruction of bone with periosteal thickening but later expansion and destruction of cortex is observed. The lesion has oftentimes been misdiagnosed as osteomyelitis. When reticulum cell sarcoma is a generalized disease, it behaves as lymphosarcoma, and most patients with generalized reticulum cell sarcoma die within a period of one year.

HODGKIN'S DISEASE

Hodgkin's disease is perhaps the commonest of the malignant lymphomas and is seen very frequently in young adults. It is twice as common in men as in women. Clinically one can divide Hodgkin's disease into three different forms: (1) a chronic form with very slow development, in which the peripheral or purely lymphatic manifestations predominate; (2) an intermediate form which includes about half of the cases with faster development and early visceral manifestations; and (3) an acute form with early anemia, rapid weight loss, and early demise.

The most frequent first symptom of Hodgkin's disease is a painless enlargement of a peripheral lymph node. However, in a few cases, the disease begins as a rapidly progressive febrile disease, with progressive anemia, toxicity, and weakness. Nice and Stenstrom prefer to divide Hodgkin's disease into three stages: Stage I, in which there is involvement of only one lymph node region, or a single lesion elsewhere, with no constitutional symptoms; Stage II with involvement of two or more lymph node regions confined to the upper or lower trunk with or without constitutional symptoms; and Stage III, involvement of multiple lymph node regions with or without constitutional symptoms, or acute Hodgkin's disease with no obvious lymphatic involvement. When the disease is generalized, the Pel-Ebstein type of recurring paroxysms of fever and rather severe pruritis are rather characteristic clinical features.

Biopsy is of course essential to diagnosis and the only cell which must be present in order to make a diagnosis of Hodgkin's disease in a lymph node is the Reed-Sternberg cell. This cell varies between 12 and 40 microns in diameter; it has an irregular shape, and its nucleus may be lobulated or multilobed. The chromatin of the nucleus appears in dense aggregates and large nucleoli are the rule. The cytoplasm varies from eosinophilic to basophilic and reticulum stains often reveal reticulum within it. Unless unequivocal Reed-Sternberg cells are seen a micro-

scopic diagnosis of Hodgkin's disease should not be made.

Stenstrom and Nice have reported 208 patients with Hodgkin's disease treated with radiation therapy. Of the patients with Stage I disease, 85 per cent survived five years and 77 percent ten years. Stage II cases showed a five year survival of 90 per cent and a ten year survival of only 35 per cent. Stage III patients had a five year survival of 10 per cent and a ten year survival of only 2 per cent.

All lymphomas show a remarkable degree of radiation sensitivity and the standard method of treatment is radiation therapy. The patient with localized lymphoma, such as a case of lymphosarcoma of the tonsil or stomach, or a patient with reticulum cell sarcoma localized to one bone, must have treatment designed so as to give the patient the maximum possible chance of cure. Surgery and radiation therapy are not complementary procedures. If the tumor can be entirely eradicated by surgery, radiation therapy is useless. Whereas, if radiation therapy is indicated after surgery it implies that excision was incomplete, and consequently, useless. It is our practice to treat such cases with radiation therapy alone and to deliver a dose of 3000 to 4000 roentgens in a period of about one month. If the disease is generalized or if constitutional symptoms are present, excessive dosage in this range is obviously impossible, and the areas of involvement should be treated with 1000 to 2000 roentgens, depending upon the extent of involvement.

Spray radiation therapy is indicated in the patient with acute Hodgkin's disease in whom no lymph node enlargement can be detected and no tumor masses can be felt. It can also be used to good advantage in the patient with extremely advanced disease and severe constitutional symptoms. The body from the neck to the knees is treated as a single field and the treatment distance must be extended to two meters in order to cover this wide an area. A dose of 25 roentgens in air is given to each anterior and posterior field. Although the improvement following spray radiation is of short duration, it is most gratifying and helpful in the care of many patients.

Radioactive phosphorus can be used instead of spray radiation but offers advantage over the method using x-ray.

Nitrogen mustard can be of great help in the management of the patient with malignant lymphoma, particularly in the patient with Hodgkin's disease. The usual total dosage of nitrogen mustard is 0.4 mg. per kilogram of body weight, divided into either two or four equal daily doses. Nitrogen mustard in this dosage produces rather severe nausea and vomiting and rather heavy sedation prior to such therapy is of considerable help. Nitrogen mustards exert a specific nuclear toxic effect by interfering with the chromosomal mechanisms and mitotic activity and further, the susceptibility of tissues is related to the rate of cellular division. This explains the vulnerability of bone marrow, lymphatic tissue, and rather anaplastic malignant tissue in general. Peripheral blood studies show pancytopenia as a result of the drug, but this is of relatively brief duration and is not a great source of worry. It is important that we carefully evaluate the role of nitrogen mustard in the treatment of Hodgkin's disease. First, nitrogen mustard is incapable of producing permanent sterilization of local tumor masses. Second, it does not have near as profound an effect on masses of neoplastic tissue as does irradiation. Third, the duration of remission of disease produced by nitrogen mustard is considerably less than that produced by irradiation. As a result, nitrogen mustard must not be considered a substitute for irradiation. It must be considered an adjunct to radiation therapy.

The points in favor of using nitrogen mustard therapy would be severe constitutional symptoms such as fever and pruritis, absence of localized tumor masses, and acquired radiation resistance of the lesion—that is, the disease which no longer responds to radiation therapy. Gelhorn

and Collins compared the course of the disease in two groups of patients: 67 who received radiation therapy and nitrogen mustard in alternating courses, and 65 radiation therapy alone. No significant difference in the four year survival rate was found in the two groups. However, the amount of radiation required was less, the asymptomatic periods longer, and the economic burden lighter for patients receiving radiation and nitrogen mustard, than for patients receiving radiation therapy alone. Nitrogen mustard is thus a useful adjunct to radiation therapy in the management of Hodgkin's disease. It reduces the requirements for radiation but does not actually prolong life.

LEUKEMIA

Leukemia can be considered a malignant neoplastic disease of the hemopoietic organs, involving primarily the bone marrow and the lymphatic and reticuloendothelial systems. Essentially it consists of an acquired inability of immature leucocytes to respond to forces normally regulating their proliferation and maturation. In this discussion we shall consider the common chronic varieties of leukemia only since acute leukemia is never successfully treated by radiation therapy.

Chronic lymphogenous leukemia is prevalent between 45 and 60 years of age and about three quarters of the cases occur in males. The outstanding first sign of chronic lymphogenous leukemia is enlargement of the lymph nodes, particularly in the cervical region. The involved lymph nodes do not become very large as a rule, usually not more than 5 cm. in diameter. In rare instances, there may be no peripheral adenopathy. Spleen and liver are usually enlarged several finger breadths below the costal margin. In chronic lymphogenous leukemia, the rise in the number of circulating leucocytes seldom reaches the very high values sometimes seen in the myelogenous variety. The total leucocyte count varies between 100,000 and 200,000 per cubic mm. The vast majority of these circulating leucocytes are adult lymphocytes presenting very little cytoplasm. Immature lymphocytes are seen but are in a relatively small proportion. About 10 per cent of cases show a normal or even subnormal white blood count. In such cases a bone marrow aspiration biopsy is necessary for diagnosis.

Chronic myelogenous leukemia is most frequently found in individuals between 20 and 60 years of age, the highest incidence occurring between 25 and 30 years. About two-thirds of all cases are found in males. There is rarely any enlargement of the peripheral lymph nodes in the early stages and the outstanding symptom is considerable enlargement of the spleen which may extend to the pubis. This spleen causes a sensation of heaviness and dragging. Tenderness of the sternum is found in the majority of patients. In chronic myelogenous leukemia, the leucocytosis is usually extremely high and may reach 1,000,000 white cells per cubic mm. The majority of these cells are polymorphonuclear leucocytes, and in addition, there are a great number of metamyelocytes and myelocytes, most of which are neutrophilic. Eosinophilic leukemia is extremely rare, and before a diagnosis is made, it should be remembered that eosinophilic myelocytes are frequently present in myelogenous leukemia, and also, that basophiles and eosinophiles may be present in large quantities in the circulating blood in other conditions.

In the later stages of both chronic lymphogenous and myelogenous leukemia, the symptomatology and clinical findings are quite variable and are dependent upon the areas of reticulo-endothelial involvement and upon the areas of leukemic infiltration. Enlargement of the mediastinal nodes may produce cough and dyspnea. Retroperitoneal lymph node enlargement produces gastrointestinal disturbances, distention and abdominal pain. Enlargement of the spleen produces a sensation of heaviness and dragging in the abdomen, and infarction of the spleen results in acute pain which may mimic an acute surgical abdomen. Bone marrow replacement may produce rather severe local bone pain and of course the associated anemia

produces pallor, fatigue, palpitation, and hemic murmurs. The increased metabolism associated with active chronic leukemia plus the inevitable anemia produces perspiration, easy fatigue, intolerance to heat, weight loss, increased appetite and increased pulse rate.

Thrombocytopenia is manifested by petechia, purpura, and hemorrhage. Leukemic infiltration of the gastrointestinal tract causes diarrhea, nausea and vomiting, and occult blood in the stools. Involvement of the central nervous system is manifested by paraplegias and cranial nerve paralyses. Infiltration of the kidneys may be associated with renal failure, renal colic, and pyuria. A diffuse infiltration of the lungs produces a rather severe dyspnea.

Radiation therapy is the principal weapon in the management of chronic leukemia. When a marked enlargement of the spleen, producing a dragging sensation, is the main objective finding, radiation therapy can probably best be directed to the spleen itself through anterior, lateral, and posterior parts. A reasonable plan is to deliver 100 roentgens in air a day to one port, alternating ports, and anticipating a total dose of about 600 roentgens. It is extremely important to do daily blood counts, and if there is more than a 10 to 15 per cent drop in the white count per day, discontinue therapy for a few days, until the count begins to level off. Then therapy can be started again at a reduced daily dosage. One cannot really evaluate the results of therapy until about two to three weeks after completion of therapy. At that time it may be obvious that a larger dose is required.

If enlargement of peripheral nodes is the most objectionable feature of the disease, radiation therapy can be delivered to the involved lymphatic areas. About 200 roentgens in air daily for two or three treatments can be given to each involved lymph node area with excellent regression of the tumor masses, and an excellent reduction in white count.

In a great many of the cases of chronic leukemia, systemic symptoms such as easy fatigue, intolerance to heat, weight loss, increased pulse rate, vague gastrointestinal symptoms, and shortness of breath, are the principal features of the disease. Since chronic leukemia involves the bone marrow and the entire reticulo-endothelial system, spray radiation to the entire body becomes the most effective method of radiation management. The patient is placed at a target skin distance of about two meters, and the area of exposure should extend from the neck to a point below the knees, the eyes and gonads being protected by lead shields. Alternating sides of the body are treated. The dose in air at the skin surface should rarely exceed 25 roentgens, per treatment, and the usual dose would be of the order of 15 to 20 roentgens. Great caution must be exercised not to give too much spray radiation before biological effect is determined.

Radioactive phosphorus is also an excellent method of management in cases of chronic leukemia and produces virtually the same effect as spray x-ray therapy. A reasonable dosage scheme would be 2 millicuries of P^{32} injected every two weeks.

It is impossible to predict in advance what quantity of radiation will be necessary to control the symptoms in any case of chronic leukemia. Nowhere in radiation therapy is good clinical control of dosage more important. The symptoms caused by the disease in the particular patient, the physical findings encountered, the basal metabolic rate, the white count and differential, the degree of anemia and thrombocytopenia, all must be carefully evaluated in order to determine the quantity of radiation necessary to produce maximum relief of symptoms and maximum increase in longevity, and also in order to prevent complications from the radiation itself. Sometimes, when the peripheral blood count is low, increase in the red cells in the circulating blood can be accomplished by giving small doses of spray radiation. Before doing this, however, a bone marrow biopsy must be done in order to be sure that the bone marrow

is not aplastic. If the bone marrow is very active, one can assume that the red cells are literally crowded out by the abundance of white cells. However, if it is aplastic, radiation therapy can be disastrous. It is impossible to use any one criterion such as the white count or the basal metabolic rate in determining when a case of chronic leukemia should be treated or how much dose should be used. The total clinical picture must be evaluated in order to come to some reasonable conclusion.

From my own personal experience in the management of chronic leukemia, I have come to several rather basic conclusions. First, that the least amount of radiation that will produce adequate relief of symptoms is the best dosage. This can be determined far easier if one does not treat the patient every day. It requires time for radiation effect, and if the time between each individual treatment is lengthened to a period of several days, and the total treatment time is prolonged, adequate clinical control of dosage becomes far easier, and more accurate. Second, I believe that one needs very little excuse to re-treat a case of chronic leukemia. It is far better to treat the patient when the blood count just begins to increase, when anemia begins to become slightly more severe, when the basal metabolic rate begins to increase, or when the patient begins to show some symptoms such as fatigue, anorexia, loss of weight or bone pain, than to wait until the patient gets in poor general condition. Constant observation is therefore essential. Third, one must not rely on radiation alone. Blood transfusions, are of tremendous value and iron therapy is frequently helpful. The possible benefit from cortisone therapy must not be overlooked. Obviously, the mental status of the patient is of paramount importance. In other words, one must treat the patient as well as his disease.

Osgood and Seaman have treated 163 patients with chronic leukemia using a program of titrated, regularly spaced total body radiation. The principles of this method are: (1) To bring the disease under initial control by small doses of either spray x-ray or radioactive phosphorus. In order to accomplish this the patient is given 15 roentgens total body radiation once a week or about 25 microcuries of P^{32} per kilogram body weight every two weeks. (2) To maintain control of the disease by minimal doses of spray x-ray or radioactive phosphorus at appropriate intervals so that the patient will remain in an optimum state of health just as the insulin requirements of the diabetic are repeated to maintain his ideal status. (3) Most important is to adjust the treatment to the needs of the patient; that is, to titrate the amount of radiation given against the clinical condition. Using this method, the authors achieved a median survival of 4.2 years in 163 cases. This is probably the best plan for the radiation management of chronic leukemia yet proposed.

CONCLUSION

In conclusion, I would like to emphasize the following:

1. Lymphadenopathy in a child may not be inflammatory in nature; lymphadenopathy in an adult is not necessarily neoplastic, therefore, biopsy is necessary for accurate diagnosis.

2. Early localized malignant lymphoma may be a curable disease—do not deny the chance of cure by undertreatment.

3. Fever of undetermined origin may be Hodgkin's disease—but one must think of the diagnosis before proving it.

4. In the management of advanced malignant lymphoma, and in the treatment of leukemia, frequent and careful observation of the patient and close clinical control, are the keys to the successful management of the disease.

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THE MANAGEMENT OF DYSFUNCTIONAL UTERINE BLEEDING DURING ADOLESCENCE *

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The onset of menstruation is considered to occur at approximately 13 years of age. Perhaps it would be more appropriate to assert that some more or less cyclic loss of blood from the uterus commences at that time. The first function of the ovary to be developed is the secretion of estrogens by the growing follicle. After varying periods, ovulation is initiated and is followed by the formation of a corpus luteum. This body continues the production of estrogen, and in addition, secretes progesterone. The latter creates a secretory endometrium from which menstruation in the true or mature sense occurs. During this period of lag in development of the complete functional state of the ovary, the endometrium is exposed to unopposed stimulation by varying amounts of estrogen. It is possible, under this circumstance, for the young girl to experience fairly regular cycles of bleeding from the uterus, or it may be that the amount, duration and interval will vary sufficiently to warrant the designation of "dysfunctional bleeding". Therefore, atypical bleeding occurring in members of this age group is caused predominantly by partial failure of function of the ovary, usually temporary, and the functional failure rarely is associated with local or general bodily disease.

Still, this is not to say that the possibility of local or general bodily disease should be ignored in evaluation of the given patient. General bodily conditions, if I may use that term in contrast to "disease," sometimes do influence the progress of development of the function of the genital tract. That is, the tissues involved are young, and are in the process of growth and development; therefore, they are more susceptible to conditions of environment than they will be after maturity has been attained. For instance, it is well known that deficiencies of diet and aberrations of nutrition, such as obesity and the state of being markedly underweight, have adverse effects on the

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functions of the anterior lobe of the pituitary body and the ovaries.

Fortunately, the great majority of adolescent girls, even though they may experience some dysfunctional bleeding, attain maturity in which normal menstruation takes place spontaneously. Accordingly, only a minority will need or seek medical care. This may cause you to wonder why I have elected to discuss this subject. I do so for the reason that dysfunctional bleeding frequently is discussed as it pertains to patients of all ages, and thus there is a tendency to consider the adolescent patient in common with members of the older age groups and to treat them similarly. To me this does not appear to be the correct approach, for these young patients do pose some particular problems. One of these, often not encountered among women who have reached the adult state, is the obligation of the physician to exert every effort to preserve the reproductive function. This, of course, means that radical measures of treatment are to be considered only as a last resort. Happily, in view of the facilities for treatment now available, it is most unusual to be confronted with this extremity.

DILATATION AND CURETTAGE

It is commonly said that dilatation and curettage of the uterus will effect a cure in 50 per cent of all females who are afflicted with dysfunctional bleeding. I wonder whether this statement does or should apply to the group of patients under discussion. I do not believe that curettage will alter the basic deficiency in these young girls in whom hormonal control of menstruation is as yet incomplete. Emphasis is placed on the necessity for microscopic examination of the endometrium prior to treatment. From a scientific point of view this may be admitted. From a practical point of view the validity of such an action may be debated. Experience has revealed that in only 1 or 2 per cent of these cases will an atrophic endometrium be encountered. In the remainder varying degrees of proliferation of the endometrium will be present. Therefore, it seems rational to me to initiate treatment by the administration of cyclic steroids and to vary the medication according to the response. Curettage would then be reserved for those patients whose condition refuses to respond to such treatment or for those in whom the operation becomes necessary for hemostasis. Another variation among these young patients is the fact that growth and development will be in progress during the course of the condition, a circumstance that will be responsible for cure, in the majority of cases. This fact materially affects our approach to treatment, for even when some therapy is judged necessary it may be purely supportive, in the nature of dietary measures and the administration of iron if it is needed. When specific hormone treatment is required it is not employed with a curative objective, but is substitutional and supportive. It is employed only until the endogenous production by the patient's ovaries of the hormones necessary to normal menstrual function can get under way.

HISTORY

The circumstances under which such a patient will visit your office are different from those which impel the adult patient to seek counsel. The young patient usually is accompanied by her mother, to whom the daughter's condition may be a new experience. The mother naturally is concerned by the possibility of organic disease and the effect of the loss of blood on the health of the daughter. For the young patient the reason for the visit is indeed a new experience. Very likely she has learned that none of her friends suffers from a similar state. She resents a situation that may have handicapped her activities and which possibly has provoked embarrassing episodes of bleeding. Moreover, she often is not pleased by the prospect of a visit to the physician's office and an impending examination.

The history of the atypical bleeding will vary greatly, so that among these patients there will be no constant pattern, amount or duration of flow. It is not easy to formulate any exact criteria for evaluation of the significance of the bleeding. Continued loss of blood for several weeks, even though it may be slight, and frequent episodes of heavy flow and sudden gushes of blood are significant. The effect of the condition on

the general state of the patient, meaning the production of anemia and the emotional reaction, merits consideration. The age of the patient and therefore the duration of the problem must be carefully considered; for example, a girl of 13 years may have had some minor problem of bleeding for six months, whereas another girl, say 16 years old, may have experienced dysfunctional bleeding for three years. Naturally, the significance of the complaint often will be determined largely by the results of the physical and laboratory examinations.

INVESTIGATIVE PROCEDURES

Despite the fact that a relative minority of these bleeding problems are serious, I think that if the condition has warranted a visit to the physician, sufficient investigation should be carried out to obtain an adequate diagnosis. Occasionally the physician sees patients of this type for whom no examinations had been performed before or during the administration of treatment. As has been said previously, we have very rarely encountered serious organic disease among patients of this age group, but the possibility of such entities as functioning ovarian tumors or blood dyscrasias cannot be discounted.

The general physical examination usually offers no difficulty, nor should examination of the pelvic viscera. The latter procedure can be accomplished satisfactorily through the rectum. The well-lubricated finger is placed against the anus and is slowly introduced while the patient strains, so that the sphincter is dilated. With the patient's abdominal muscles relaxed, the condition of the uterus and adnexa can be determined easily. The vagina and cervix can be inspected through a small tubular speculum or Kelly urethroscope. Some topical anesthetic agent can be applied to the hymenal ring, if necessary. In my experience the patient is rare indeed for whom the necessary examinations cannot be carried out in the office.

The number and character of the laboratory examinations to be performed will depend on the results of evaluation up to this point. The laboratory examinations needed naturally will vary from patient to patient. It would seem that a hematocrit reading and determination of hemoglobin are minimal requirements. Although defects in coagulation of the blood are rare among such young patients, it may be wise to perform one or two screening tests to eliminate this possibility. Determination of the basal metabolic rate occasionally will throw some light on the cause of the condition.

TYPES OF DYSFUNCTIONAL BLEEDING AND TREATMENT

When the foregoing diagnostic inventory has been completed I have found it convenient to consider the patient as a member of one of three categories. The first and largest will include those patients in whom no local or general bodily abnormality is present, and whose dysfunctional bleeding is of no significant consequence. Under these circumstances, the background of the condition is reviewed with the mother and the patient. Thus, fears are allayed and understanding replaces misunderstanding. Adequate nutritional requirements are outlined. When obesity or inadequate weight is present it should be adjusted by appropriate dietary measures. The temptation to prescribe hormone preparations for a patient of this type should be resisted.

In the second group are those patients who have experienced a loss of blood sufficient to produce significant anemia and perhaps disability and inconvenience—a chronic state but not one of emergency. In this instance the physician must consider, in addition to a diet high in protein and vitamins and the oral administration of iron, some specific therapy intended to regulate the loss of blood. I have emphasized the deficit of progesterone and the persistence of the stimulation of estrogens to the endometrium in these patients. Therefore, it may seem paradoxic to suggest the use of estrogens alone as a trial of treatment. Nevertheless, in my experience, the oral administration of Premarin for three weeks in each four weeks often has controlled the bleeding. This action arises from the fact that while the effect of estrogen is unopposed, the bodily level of estrogen may wax and wane and thus result in withdrawal bleeding from the proliferated endometrium. The admin-

istration of estrogens will consistently maintain the bodily concentration above the bleeding level, and thus obviate the process of withdrawal bleeding.

If some cycle of bleeding is present, administration of the agent is commenced on the first day of the flow and is continued for three weeks. When no semblance of a cycle exists, use of the medication may be started at any time. The doses will vary somewhat among patients, but generally 1.25 mg. is employed three times a day. Shortly after completion of the course of treatment withdrawal bleeding will occur. The next cycle of therapy is commenced in one week, twenty-eight days after the first day of the previous course, regardless of the presence or absence of bleeding.

I have preferred this program of treatment to the repeated intramuscular injection of estrogens, for I believe the oral treatment I have described ensures maintenance of a more constant level, and it is more convenient and less expensive for the patient. Presently, however, long-acting preparations of estrogen, such as Delestrogen, are available. Twenty milligrams of this preparation is administered intramuscularly on the first day of flow or at any time, if no cycle can be determined. This injection is repeated at intervals of twenty-eight days. As a rule, the administration of estrogens will not inhibit the bleeding for a few days. If the loss of blood is excessive, it can almost always be controlled by the intravenous injection of 20 mg. of premarin injectable. This is then followed by one of the forms of cyclic administration mentioned previously. If this form of treatment proves effective it should be continued through four twenty-eight-day cycles. It may then be stopped or, in some instances, it may be well to continue for two more cycles with a reduction in the dose.

If the administration of estrogens alone does not prove effective, progestational steroids should be added to the therapeutic program. Use of these agents is commenced on the fourteenth day of the twenty-one days that the estrogens are given. As is true of use of the estrogens, we prefer to employ orally administered preparations initially, for in many cases they have proved effective. We have used 30 to 50 mg. of Pranone daily for seven to ten days, and have found the results satisfactory when an estrogen-primed endometrium is present. Recently, steroids with progestational activity have been derived from 19 nor-testosterone and are effective when they are administered orally. Norlutin and Enovid are examples. They are administered daily in a dose of 10 mg. for seven to ten days, beginning on the fourteenth day of the estrogen therapy. Progestational steroids can be administered intramuscularly. One of the most effective preparations is Delalutin. This is a long-acting agent. It is administered in doses of 125 to 250 mg. on the fourteenth day, and will provide an effective bodily concentration for seven to fourteen days. Pure progesterone can be given in a single injection of 100 mg. or in divided doses of 25 mg., for four doses every third day. I do not believe this will prove as effective as the long-acting preparation.

Another convenient and effective form for the administration of progesterone is found in colprosterone vaginal suppositories. These are available in 25 and 50 mg. units. One or two are used daily for seven to ten days. It should be remembered, when these combinations of estrogen and progesterone are employed, that the administration of estrogens should be continued during the time the progesterone is given, at least for the first week. The latter is effective only on an endometrium previously primed with estrogens. It is also true that progesterone is most effective on an endometrium in which the estrogen stimulation is maintained. Under the circumstance of normal endogenous ovarian function, this condition obtains, for the corpus luteum secretes estrogens as well as progesterone.

There remains a consideration of the cyclic administration of progestational steroids without the preliminary and coincident use of estrogens. If endogenous estrogen is available in sufficient amounts, the bleeding can be controlled. Thus the cyclic administration of these substances, as mentioned previously, can be a rational trial of treatment.

Presently there are numbers of estrogenic and progestational steroids available for various routes of administration. May I point out that the preparations I have mentioned are simply those with which I have had some experience. Similarly effective preparations are available under other names.

No one has explained the exact relationship between the function of the thyroid gland and the function of the ovaries; however, over the years thyroid extract has been administered to many patients suffering from all types of menstrual dysfunction. Perhaps this form of treatment has received more credit than it deserves, for frequently the doses employed have been too small to be considered effective. Nevertheless, if the basal metabolic rate is found to be lower than normal, I believe the administration of thyroid extract or Cytomel has a place in the treatment of this group of patients. Sufficient amounts of these medications should be employed to elevate the basal metabolic rate to normal and to maintain the rate at normal. I am aware that estimations of protein-bound iodine and of the uptake of I^{131} are more accurate measures of thyroid function than is the basal metabolic rate. Yet clinical experience with the use of the above preparations on the basis of the basal metabolic rate alone seems to warrant this form of treatment.

The third group contains the relatively rare patient to whom blood of proper group and Rh factor must be administered because of marked anemia, and curettage performed for the control of hemorrhage. An alternative to currettage is the intravenous administration of 20 mg. of premarin injectable. If necessary, this measure is repeated within four hours, once or twice. The bodily concentration of estrogen is thus elevated above the "bleeding level." When this treatment is used in combination with replacement of blood by transfusion, if necessary, it has proved very effective. Both of these procedures should be followed by use of the cyclic steroids previously mentioned to prevent recurrence.

COMMENT AND CONCLUSIONS

Dysfunctional uterine bleeding is not uncommon during adolescence, but most of the patients will need no treatment.

In the minority of such patients who do need treatment certain problems peculiar to members of this age group should be borne in mind. These problems are described. It follows that patients of this type should not be considered in common with older women who experience dysfunctional bleeding.

An increased understanding of the physiologic processes involved and significant developments in the medications available have greatly facilitated satisfactory treatment.

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THE EFFECTS OF PROMAZINE ON PSYCHIATRIC SYMPTOMS

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The use of promazine hydrochloride,† a phenothiazine derivative, has been reported helpful in the management of psychiatric patients.[1-4] The drug has shown particular value in the relief of acute alcoholic and drug withdrawal syndromes,[2,5] and it has been compared favorably with the other ataractics. The present study was undertaken to investigate the clinical effects of promazine in the treatment of a group of neurotic and psychotic patients and, insofar as possible, to quantitatively compare reactions to the drug with the effects of a placebo on the principal symptoms demonstrated by the patients.

METHODS

Promazine was administered to a total of 83 patients, of whom 69 were out-patients attending the Psychiatric Clinic of the Charity Hospital of New Orleans, and

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† Promazine hydrochloride or Sparine was supplied by the Wyeth Laboratories, Philadelphia, Pennsylvania.

14 were in-patients on the psychiatric wards of that institution. The diagnostic categories represented are shown on Table 2. All patients received supportive psychotherapy during the course of the drug study.

A double-blind procedure was employed, with neither the investigators nor the patients being aware of whether the medication consisted of the drug or a placebo. The individuals who administered the medication took no part in the clinical evaluation of the results; this was performed by the authors. Forty-two of the patients began the study on promazine; forty-one on the placebo. After two weeks the placebo was administered to the group who had begun on promazine, while promazine was received by the group originally on the placebo.

Following the one month double blind period, many of the patients were given the drug for longer periods of time, to determine the effects of more prolonged treatment. Thus, while the minimum period for treatment with promazine was two weeks, the average duration of drug therapy was twenty-five days, with a maximum of three months on promazine for several patients. The dosages employed ranged from a minimum of 50 mg. b.i.d. to a maximum of 400 mg. q.i.d. The drug was administered orally in all cases except one, for whom the intramuscular route was employed initially.

Patients were evaluated initially by the use of a psychiatric profile which ranked signs and symptoms on a four point scale, according to severity:

Mild—symptom definitely present but not severe enough for patient to seek relief from it

Moderate—severe enough for patient to seek relief, but not very disturbing

Marked—severely disturbing to patient, makes him markedly uncomfortable

Severe — overwhelmingly disturbing, enough to disorganize the patient.

The signs and symptoms so evaluated were: affect disorder, association defect, depersonalization, depression, anxiety, delusions, hallucinations, socialization defect, insomnia, anorexia, resistance to psychotherapy. This mental status examination was repeated at intervals of a week or less

TABLE 1.
QUANTITATIVE IMPROVEMENT IN THE SEVERITY OF SYMPTOMS [1]

	Placebo Followed by Promazine			Sparine Followed by Placebo		
	Number Observed with Symptom	Percent Improvement after Placebo	Percent Improvement after Promazine	Number Observed	Percent Improvement after Promazine	Percent Improvement after Placebo
Affect						
Flattened	31	9	7	28	19	19
Inappropriate	9	28	22	15	35	39
Assoc. Defect	10	9	24	16	21	14
Depersonalization	32	11	26	27	24	27
Mood						
Depressed	35	19	36	28	39	44
Euphoric	2	0	17	2	–200	100
Anxiety	39	15	34	35	35	41
Delusions	19	9	33	19	19	15
Hallucinations	17	34	40	12	20	36
Sociability						
Withdrawn	32	10	16	28	10	9
Extrovert	2	0	40	2	0	33
Insomnia	39	30	64	27	39	30
Anorexia	31	12	38	21	20	22
Amenability to Rx.	30	4	4	31	1	1

[1] For this table we averaged the severity of each symptom, as measured on the 4-point scale described above, for all patients showing that symptom. This average intensity of symptom was determined first prior to therapy and then compared with the average intensity after drug and after placebo. The results are expressed in terms of percentage of improvement.

for the in-patients, and bi-weekly for out-patients. In addition, the examining psychiatrist made an overall subjective evaluation of the patient's psychiatric condition at each visit, using a second four-point scale:

1. Slight improvement—some beneficial effects noted but as yet not enough to warrant further use of the drug
2. Moderate improvement—favorable results, but patient seeking further relief
3. Marked improvement — symptoms subsided, no longer disturb the patient
4. Recovered — symptoms subsided completely, both subjectively and objectively; patient socially productive.

Prior to medication, all in-patients received a thorough physical and laboratory examination which included electroencephalogram, electrocardiogram and x-rays of the chest and skull, to evaluate the possibility of organic pathology. For out-patients, a baseline white blood count, differential, and urinalysis were performed. For in-patients, the following blood chemistry tests were performed in addition: blood urea nitrogen, fasting blood sugar, thymol turbidity, cephalin flocculation, and alkalin phosphatase. These laboratory studies were repeated at two weeks intervals for all patients during the first month and at monthly intervals thereafter. Careful day-to-day check was kept on in-patients for blood pressure, pulse, weight, and temperature.

RESULTS

Definite improvement (moderate to recovered) was shown by 43 patients (49 per cent of the total group) while receiving the drug, 20 patients (22 per cent) showed slight improvement, 14 (17 per cent) were unchanged, and 6 (7 per cent) became worse. A statistical analysis was made, comparing the effects of the drug with those of the placebo, in the group who received the placebo first.‡ Significantly greater improvement was found during the drug period, with the probability of so great a difference occurring by chance at close to one in a hundred ($0.5 > p > .01$).

The reduction of the severity of the symptoms of patients receiving promazine as compared with those on placebo is detailed in Table 1. For this table the average severity of the individual symptom in all patients was determined prior to therapy, then compared with the average intensity after drug and after placebo. The results are expressed in terms of percentage of improvement and offer a rough quantitative estimate of the amount of improvement for each symptom. The drug is seen to have been significantly more effective than placebo in the relief of anxiety and insomnia to a high degree ($p < .01$). It was also effective with delusions, anorexia, and depression (agitated type) ($.01 < p < .05$). There was often a reduction in the frequency and intensity of auditory hallucination and in symptoms of depersonalization, but this was not significantly greater than with placebo. In general, patients tended to become less withdrawn, demonstrated somewhat better affect, and showed less association defect. It is clear from the table, however, that although the symptoms mentioned above did show definite improvement, they did not as a rule disappear completely.

The effects of promazine are correlated with diagnostic categories in Table 2. Of 59 schizophrenic patients treated, 27 (46 per cent) showed definite improvement (moderate - marked). The drug seemed generally to be most useful in those disturbances in which anxiety is a prominent component. Of particular interest were a number of cases in which there was drastic reduction of delusional and referential ideation (see case history).

The dosage eliciting maximum response varied from 50 mg. b.i.d. to 200 mg. q.i.d. Larger doses than these did not seem to be of any further value. In most cases the optimum dosage was 50 mg. q.i.d. Improvement on promazine was often noted

‡ A similar analysis of the group receiving drug first would not be valid because of the frequent persistence of the effects of the medication after it had been replaced by placebo.

TABLE 2.
EFFECTS OF DRUG CORRELATED WITH DIAGNOSIS

Diagnosis	Total	Results		
		Worse	No Improvement or only slight	Definite Improvement
Schizophrenia, chronic				
Paranoid	11	0	5	6
Undifferentiated	21	2	12	7
Schizo affective	3	0	2	1
Pseudoneurotic	11	2	3	6
Catatonic	1	0	1	0
Schizophrenia, acute				
Undifferentiated	7	2	2	3
Paranoid	5	0	1	4
Psychotic Depress.	2	0	0	2
Korsakoff's Syndrome	1	0	1	0
Anxiety Neurosis	7	0	2	5
Hysterical Reaction	2	0	1	1
Anxiety Reaction	2	0	1	1
Depressive reaction	5	0	1	4
Asthma	1	0	0	1
Personality Disorders				
Schizoid	1	0	0	1
Paranoid	1	0	1	0
Passive Dependent	1	0	0	1
TOTAL	82	6	33	43

during the first twenty-four hours and usually was most marked by the end of the first week of medication, although several weeks were necessary in some cases before maximum improvement was attained.

CASE HISTORY

The following case history is presented to provide an example of promazine's effects. It illustrates marked improvement sustained over a period of four months.

The patient was a 29 year old, white male farmer who had been seen in out-patient therapy for approximately two and a half years. The symptoms during that time ranged through the realm of paranoid schizophrenia; primarily he had symptoms of a hypochondriacal nature with somatic delusions. For example, he complained of the muscles in his arms aching "as if the muscles were being ripped off the bone", and he also brought in lists of his somatic complaints to the therapeutic sessions. Other symptoms included insomnia, chronic nightmares about his father, occasional crying spells, auditory hallucinations of a persecutory nature, fears of going out in crowds, and other symptoms of a referential and persecutory nature. No organic pathology was found in recent medical workups. He had frequently been known to be assaultive upon members of his family and to have threatened people in the community. Last year he had actually shot a former lodger of his in the head and barely missed killing him, but it seemed that this was a legitimate provocation for the first time. During the past two years his referential and persecutory ideas had gradually diminished, but his hypochondriacal and somatic delusions had remained about status quo.

Patient had been unable to work for two years and had been supported by United States Department of Public Welfare. He had been tried on various sedatives and on Thorazine without much benefit. On August 8, 1956, he was started on 50 mg. of Sparine placebo 4 times daily, and after two weeks he reported that he was able to sleep a little better, but other than this he had noted no change. He was then switched to Sparine drug, at the same dosage level, and after two weeks his nightmares about his father had completely disappeared, his hypochondriasis was greatly diminished, he was better able to go out in crowds although he still felt slightly nervous, for the first time in many months he did not bring in a list of his hypochondriacal complaints, and he no longer experienced auditory hallucinations.

He was still on the medicine, four months later, at the same dosage level, and was completely in remission except for a mild hypochrondriasis. Patient reported that he felt better than he had in many years, and that he took a correspondence course to learn how to be an auctioneer and now functioned in this capacity earning up to $50 a day. In addition to this, he had a job as a chicken feeder for the past six weeks and also helped out on a nearby ranch.

His wife was equally enthusiastic about his improvement.

Laboratory examinations were repeated first at bi-weekly and then at monthly intervals, and they failed to reveal any evidence of a toxic effect.

LABORATORY STUDIES

The changes noted on hemograms were as follows:

Leukopenia occurred in one case. While taking 100 mg. of promazine q.i.d., the patient's white blood cell count declined from a baseline of 4300 to 3600 in a thirty day period. The drug was discontinued, but a slow decline continued to 2600 during the next two weeks. The differential count remained normal. A sternal puncture at that time revealed scanty marrow clumps with a marked erythroid hyperplasia. The count gradually returned to normal during the next month. We cannot definitely state that the bone marrow depression was due to promazine, but the suspicion is strong in view of the fact that this patient was on no other medication and that agranulocytosis has been reported elsewhere with the drug.[6]

Six patients showed an elevation in eosinophile count ranging from 4 to 17/100 WBC. These patients had no clinical symptoms of any sensitivity reaction, and the significance of the eosinophilia is unknown. No changes in hemoglobin content were observed. Urinalysis, including microscopic examination of the sediment and test for sugar and albumen, revealed no alterations on the drug.

Thymol turbidity, cephalin flocculation and alkaline phosphatase studies were made on 15 patients. There was a questionable rise to abnormal levels in thymol turbidity in 2 cases and in alkaline phosphatase in 2 other cases. Unfortunately, we were unable to do follow-up studies to verify these findings. On all cases cephalin flocculation remained unchanged. No jaundice or other clinical evidence of liver disease was encountered. Blood-urea-nitrogen and fasting blood sugar revealed no abnormal alteration, but there was a tendency for the latter to decline slightly.

In 14 in-patients on dosages ranging as high as 400 mg. q.i.d. there was no significant alteration in pulse, respiration or temperature. Two patients showed a 20 mm. decrease in systolic blood pressure, but on no occasion did it reach hypotensive levels. The in-patients showed an average weight gain of 6.3 pounds.

SIDE EFFECTS

The most frequent side effect experienced was sleepiness. Twenty-three per cent of the patients complained that the drug made them too sleepy to perform their work adequately. An additional 30 per cent of the patients complained of a less pronounced drowsiness. Eight per cent were bothered by a dizzy or "drunken" sensation. A feeling of general lethargy occurred in 7 per cent. Other side effects, each encountered in 2 or 3 patients, were: vertigo, nausea, dryness of the mouth, nightmares, edema (without weight gain), and dermatitis. In many cases side effects tended to abate after the first three to four days of medication. They tended to increase in frequency and severity in doses higher than 100 mg. q.i.d. Those patients who complained most of side effects often experienced similar, although less severe effects while receiving the placebo.

SUMMARY AND CONCLUSIONS

Using a double-blind procedure, the clinical effects of promazine hydrochloride, a phenothiazine derivative, were studied in a group of 83 psychiatric patients, largely schizophrenics. The drug seems to have an ataractic effect, similar qualitatively to that of Thorazine. Forty-nine per cent of the patients showed definite improvement while receiving the drug. This improvement was significantly greater than that shown on placebo. It was especially efficacious in reducing anxiety and in ameliorating insomnia. Although frequent side effects were encountered, these were usually not severe enough to negate the value of the medication. One case of white blood cell depression occurred in this series, and since agranulocytosis has been reported to occur with promazine[3] as it does with other phenothiazine derivatives, routine white blood counts should be employed.

Since promazine may afford symptomatic relief and thus help in making the patient more amenable to psychotherapy, it is considered to be a useful aid in treatment in many cases.

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THE PROFESSIONAL LEGAL LIABILITY PROBLEM

The number of suits against physicians for legal liability is increasing. A study by the legal department of the American Medical Association, under Mr. C. Joseph Stetler, as director, has shown that about 14 per cent of physicians have had a medical professional liability claim or suit brought against them. California leads with one out of four, and South Carolina has had least, with less than one out of thirty-three.

A total of 18,500 physicians have had malpractice suits filed against them at some time. Of these, 40 per cent have been dropped or decided in favor of the physician. Specialists are more subject to such actions, whether justified or not, than others in the profession. The reasons behind this are both economic and medical. The specialist would be expected to have a higher income and carry more professional insurance than other doctors. He would also be more disposed to settle without a trial at a time when his reputation and professional standing are at their peak. In addition, the specialists, who constitute about one fourth of the profession, would be expected to handle the most difficult procedures with an attendant greater proportion of unfavorable results.

The doctor's defense in this situation requires that he prepare adequately in three ways.

The first is maintenance of adequate insurance. This is obvious. What is adequate insurance is not so clear. With a group organized among the lawyers working for a constant increase in court awards and the numerous decisions in six figures, the individual physician feels it a necessity to secure insurance coverage in similar amounts. On the other hand, the common knowledge that most doctors are covered and that the more prosperous ones are covered for larger amounts seems to invite legal claims and to encourage juries to name huge amounts in their decisions. The thought that insurance covers or should cover any amount the court decrees does not minimize the burden. The money comes ultimately from the earnings of the physicians who pay the premiums, and not from a mythical pool of insurance company money available for any court decision. As most physicians know the rates for insurance coverage in this field have increased sharply in recent years, and in some areas professional liability insurance is difficult to obtain. In the whole field of insurance, however, it is more necessary here to read the fine print and even between the lines of the

policies than in any other. The plan of one insurance group, which does not issue policies with high coverage, to utilize every legal means to defend every suit has merit.

The second defense against these suits begins the day the physician starts practice and consists of his continued adherence to all the professional, ethical, and moral precepts that have been instilled into him in all phases of his training and life's experience. While dependence on guidance of this type is a counsel of perfection, the thought of what is best professionally may be a substantial help in determining what is best legally. It must be said, however, that the application of the golden rule is not of itself sufficient protection to the physician. He must guard against deliberate distortions and misrepresentations. The law department of the American Medical Association is providing increasing help in such matters. An instance of this is their preparation of a variety of legal forms for signature by the patient. This documents the patient's consent to the anticipated procedures.

The third defense against these claims depends upon the physician's local society and its maintaining an adequate organization which will either adjust grievances or develop the facts in a legal conflict upon which the doctor's defense may rest. The activity of these local defense committees becomes necessary at the first indication of legal conflict, and is most effective before the case reaches trial. Their benefits are in proportion to the degree of cooperation obtained. Their action may be protective or aggressive. The suits not justly founded can be placed in their proper perspective. The others can have appropriate recommendations given to the principals.

The net result of having malpractice suits as proximate and increasing threats is that the public will suffer. The total expense, of necessity, ultimately falls on the doctor's patients and increases the cost of medical care. The physician, when placed in a position of having to fortify each statement with irrefutable proof and of having to anticipate remote possibilities, must have facts and supporting opinions. This brings the need for exhaustive laboratory tests and numerous consultants. By these means the hazard to the physician is reduced, but the cost to the patient is increased.

The attitude of the public which serves as the background for the increase in law suits not justly founded, and the legal awards in six figures are based upon two faulty and related ideas. These are not verbally expressed but are the basis for public judgment and action. One is that the physician must uniformly achieve a satisfactory result. The other is that medicine is an exact science, such that a given effort should command a desired result.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

REPORT OF THE PRESIDENT

The highlights of the Louisiana State Medical Society for the past year have been marked by events which were both triumphant and tragic.

Shortly after the inauguration of new officers, the State was visited by one of its worst natural disasters. Hurricane Audrey was responsible for the loss of more than 500 lives, including three children of one of our members.

The service of Cameron and Calcasieu Parish doctors during the hurricane will never be forgotten by the thousands of refugees to whom they rendered treatment and attention.

Shortly after the hurricane, the President visited Lake Charles during the Southwest Louisiana Graduate Medical Assembly. Besides enjoying

the Assembly and the hospitality of the sponsoring Society, this occasion provided an opportunity to meet Dr. Cecil W. Clark and to formulate plans for placing his name in nomination for the American Medical Association award which is given annually to a general practitioner who renders outstanding service to his community. It is now a matter of record that Dr. Clark won the award which the AMA has described as its outstanding medical public relations accomplishment for 1957.

The membership of the State Society is to be commended for the very rapid and excellent response to the letter soliciting financial assistance for three Cameron Parish doctors who were most seriously affected by Hurricane Audrey.

No other project in the history of the Society has received a greater quantity of favorable publicity than the vaccination campaign conducted under the auspices of the Committee on Gamma Globulin and Salk Vaccine. The Society did everything possible to encourage the people of the State to be vaccinated and members devoted countless man hours during the campaign. The Committee, which was headed by Dr. Philip H. Jones, is to be congratulated and commended for a job well done. The Society plans to continue the polio vaccination campaign on an annual basis until it has reached 100 percent effectiveness.

The Society is once again indebted to the Board of Medical Examiners for the time, effort and expense exerted during the past year to combat chiropractic practice in various sections of the State. As this report is written, the officers and members are again girding themselves for a renewal of the fight in the Legislature to prevent chiropractors from gaining legal status.

The Council on Medical Service and Public Relations is commended for many successful projects, including its very excellent presentation of CAPSULES, the monthly newsletter sent to members of the Society. This is unquestionably the most completely read of all our Society publications.

It is important to note that during the year, the Sixth District Medical Society conducted a special meeting to reorganize its administrative set-up. Although the President was unable to accept an invitation to attend this meeting, a complete report on what was done has been received and it is felt that this represents a progressive step in the right direction.

We have been very much impressed with medical facilities and the extremely high type of practice developing in the fast-growing section of Plaquemine. The doctors participating in this development are to be congratulated.

During the year, practically all sections of the State were visited either to attend meetings or for other purposes.

Trips to Shreveport included attendance at a meeting of the Shreveport Medical Society and also a special visit to the Louisiana State Fair where the Shreveport Society sponsored a highly successful "Medical Progress" exhibit in cooperation with the State Society. The exhibit contributed greatly to the cause of professional medicine and has tremendous prospects for future usefulness. It is hoped that the Louisiana State Medical Society will continue to participate with the Shreveport Medical Society in furthering and expanding this event which has proven itself by its merit.

Monroe was visited during the time of the annual convention of the Louisiana Academy of General Practice. The Academy members were extremely hospitable and extended the President of the State Society the very great privilege of sitting in with their Congress of Delegates and participating in its discussions.

A visit to the Rapides Parish Medical Society was made in conjunction with the 1957 Founders' Day program. Judging from the activities witnessed, the Society members are most active and progressive and their sessions were highly educational and enjoyable.

A trip was also made to Alexandria during the time of the reunion of the "120 Group" composed of doctors who served at Camp Beauregard during World War I. On this occasion, Dr. George F. Lull, Secretary and Assistant to the President of the American Medical Association and Commander of the "120 Group" in its active days was present.

During the year, two visits were made to meetings of the American Medical Association, including the annual meeting in New York and the clinical meeting in Philadelphia.

At the New York meeting, the subject causing the most discussion in the House of Delegates was social security proposals for doctors. The House was highly favorable to the Jenkins-Keogh Bill which the Louisiana State Medical Society went on record as favoring at its last Annual Meeting.

At the Philadelphia clinical meeting, the retiring president of the AMA denounced the Forand Bill. There was considerable discussion on the ever-controversial subject of water fluoridation, with the AMA finally approving it.

A special session on the Medicare program was very enlightening and was well attended.

From the viewpoint of our own State, however, the most important business at the Philadelphia meeting was the presentation of the medal for "The General Practitioner of the Year" to our own member, Dr. Cecil W. Clark of Cameron.

There were numerous other meetings which were attended during the year including staff banquets, installation meetings and discussions with insurance groups.

During one of the latter meetings, it was brought to our attention that in certain areas of the State, excessive discrepancies exist in the fees which different doctors charge patients for performing identical services. This situation has been particularly pronounced in one section of Louisiana for a number of years and has been under the observation of the State Society. It is our hope that this matter may be rectified in the near future.

At the Annual Meeting last year, the House of Delegates approved a plan for providing Louisiana newspapers with a weekly column devoted to general health subjects. Unfortunately, the project has not been inaugurated because individual members have failed to cooperate by submitting material from which the columns could be prepared. It is still believed that the health column plan is most worthwhile and a recommendation is offered for its institution.

One of the most sorrowful happenings of the year was the loss of our oldest member, the famed and highly revered Dr. Rudolph Matas. It is indeed fortunate that Dr. Matas' "History of the Louisiana State Medical Society", which was published under the chairmanship of Dr. Isidore Cohn, Sr., will always be with us as a permanent memorial to Dr. Matas and the invaluable contributions he made to professional medicine.

In closing, I wish to thank the entire membership for allowing me the privilege of serving as President. I most especially thank the various committees and the members of the Executive Committee for their extreme cooperation and untiring efforts toward making this year a very successful one.

My sincere thanks are extended to the Secretary-Treasurer for his guidance and counsel in difficult matters and for his laborious work in handling medical details incident to the duties of his office.

No report would be complete without a salutation to Miss Annie Mae Shoemaker, "Miss Louisiana State Medical Society," and her highly efficient staff of assistants. Space does not permit the listing of names of the many who have helped but I wish every one of them to know that their cooperation has been appreciated.

RECOMMENDATIONS

1. The Society formally request each specialty group to furnish a given number of columns pertinent to their own specialty and which are suitable for use by the Society in providing the newspapers of Louisiana with a steady source of material for a Society-sponsored weekly health column.

2. The Society cooperate more completely with the Shreveport Medical Society in conducting the "Medical Progress" exhibit at the Louisiana State Fair, particularly in furnishing help from various parts of the State to man the exhibits at least part of the time when the fair is in progress.

3. The Society approve continuance of present exemptions accorded non-profit hospitals by the Labor Management Relations Act (The Taft-Hartley Act). (Under the existing federal regulations, non-profit hospitals are released from the obligation of entering into negotiations with trade unions).

H. ASHTON THOMAS, M. D., President

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

NOTICE TO FORMER GRADY HOUSE STAFF

An organization is being formed which is to be composed of all former members of the House staff of Grady Memorial Hospital in Atlanta. Two years ago, letters were sent to all known former House Officers. However, we know many names were not included because of an incomplete mailing list. If you did not receive a notice

or failed to reply for any reason please notify our office and let us know your name, address and when you were at Grady. Plans are now being made for our first annual meeting next fall.

Address: Grady Hospital Clinical Society, Office: G-610, 80 Butler Street, S. E., Atlanta, Georgia.

GOLF TOURNAMENT

The American Medical Golfing Association is holding its annual golf tournament in conjunction with the A.M.A. Convention June 23, 1958, at the beautiful Olympic Lakeside Golf and Country Club, San Francisco, California. This will be a whole day of rest and relaxation with golf, luncheon, banquet, and a prize for everyone. We have left no stone unturned to assure you the very best. Tee off time 8 AM to 2 PM. We cordially invite all golfing doctors to attend. Handicaps scratch to 30 in flights.

For information, contact James J. Leary, M. D., Secretary, 450 Sutter Street, San Francisco, California.

ANNUAL MEETING AND SCIENTIFIC SESSION, LOUISIANA HEART ASSOCIATION

Lake Charles, May 17, 1958

The annual meeting and scientific session of the Louisiana Heart Association will be held in Lake Charles on May 17, at the Majestic Hotel, Dr. George M. Anderson, President, L.H.A., announced.

Featured speaker of the scientific program will be Francis L. Chamberlain, M. D., San Francisco, California, President-elect, American Heart Association, and Associate Clinical Professor of Medicine, University of California School of Medicine. Dr. Chamberlain's subject will be "Practical Aspects of the Present Controversies on Etiology of Atherosclerosis."

Dr. Anderson said that registration will open at 8:30 a.m. Reservations may be made now through the L.H.A., P.O. Box 8397, New Orleans 22, La.

A symposium on Heart Disease and Employment will be held on May 16, with John A. Worley, M.D., Alexandria, Chairman, Rehabilitation Committee, L.H.A., presiding.

An all-day scientific session has been planned for nurses Friday, May 17. Miss Lydia Hall, Columbia University, will be a prominent participant.

A.M.A. FILMS

A revised list of films available through the A.M.A. motion picture library has been prepared and copies are available upon request from Motion Pictures and Medical Television of the American Medical Association. This catalog lists 87 medical films suitable for showing to medical societies, hospital staff meetings and other scientific groups. This catalog also includes 57 health films of interest to physicians who may be called upon to speak before lay audiences such as service organizations, Parent-Teachers' Associations, etc.

SOCIAL SECURITY

SOCIAL SECURITY SAYS: "A wife or widow under 62 or the divorced wife of an insured person may receive payments only while she has in her care a child (under 18 years of age) who is entitled to monthly payments."

In Other Words: Many widows who married in their 20's and lost their husbands in their 40's, would not receive any survivors' benefits until they reached age 62 because their children would be 18 or older.

SOCIAL SECURITY SAYS: "People are taxed only once for Social Security."

In Other Words: The employer who must pay his share of the social security tax for each of his employees increases the price of his product or service to cover this additional cost of doing business. Everybody pays this increase as a hidden "sales tax."

MEDICAL GRIEVANCE COMMITTEES SPREAD ACROSS NATION

More than 1,100 American county and state medical societies now have "medical juries"—grievance committees organized to mediate differences between doctors and patients.

The accomplishments and aims of grievance committees are outlined in a special article and editorial in the April 5 Journal of the American Medical Association.

Medical grievance committees are not really new. Since 1871 the committee on ethics and discipline of the Massachusetts Medical Society has been mediating the complaints of patients. What is new is the spread of the committees across the nation. During the last 10 years more than two thirds of the county societies and all the state and territorial associations have organized them.

Serving on these committees are between 5,000 and 10,000 physicians who fearlessly "judge complaints routinely in the twin light of public interest and professional service," the article said.

On one hand a committee may rule in favor of the patient, saying, for instance, about the doctor involved, "Fee for prenatal visits considered excessive."

On the other hand, it may decide in favor of the physician. One example is that of the patient who protested that he was charged $40 for "just one office visit." Investigation showed that, at his own request, the visit entailed a thorough examination including a fluoroscope study, electrocardiogram, and extensive laboratory work. When he understood what the fee covered, he withdrew the complaint with apologies.

"CASUAL ATTITUDE" CAUSES ELECTRIC SHOCK DEATHS

A casual attitude about electric current which "verges on the suicidal" is taking the lives of more than 1,000 persons each year.

This was reported in the current (April) Today's Health, the American Medical Association's popular health magazine.

A large number of these accidents involve children and housewives and result from a lack of understanding about the use and upkeep of electric appliances, according to the authors, T. Arthur Turner and Nicholas Shuman, both of Chicago.

Millions of people have experienced varying degrees of electric shock by handling household appliances with worn or damaged insulation. Most suffer no more than discomfort and immediately forget the incident.

The reason that some people suffer only minor discomfort and others death lies in body resistance to electric current. The body offers considerable resistance to normal electric current and is usually insulated in some manner so that when current enters the body and tries to get to the ground it is absorbed, they said.

However, this changes when a person is standing in water, which is a conductor of electricity. And if the voltage is high enough, resistance will be overcome regardless of the situation.

NUTRITION PLAYS SMALL ROLE IN SKIN DISORDERS

Contrary to common belief, most skin disorders are "not significantly connected" with dietary or nutritional allergies or deficiencies, according to an American Medical Association council report.

In fact, "dietary factors in acne vulgaris and psoriasis are generally overrated," Dr. Allen L. Lorincz, assistant professor of dermatology at the University of Chicago, said in the report prepared for the A.M.A. Council on Foods and Nutrition. The report appears in the April 12 A.M.A. Journal.

Malnutrition in the form of overeating, which leads to obesity, is by far the most frequently encountered nutritional disturbance that causes or aggravates skin diseases," Dr. Lorincz said. Obesity precipitates or promotes a variety of disorders of skin on opposing surfaces of the body (such as the corner of the lips) because of the accumulation of heat and moisture between folds of the skin.

Because dissipation of body heat by conduction and radiation is impaired by a thick subcutaneous fat layer, obese persons become overheated easily and tend to sweat more profusely.

Excessive sweating has an adverse effect on normal skin and especially on most inflammatory skin diseases. It affects a number of lesser known conditions—stasis eczema, which occurs on the legs, skin ulcers, and striae distensae, which results from excessive stretching of the skin.

ANTILEPROSY DRUG

An antileprosy drug called CIBA 1906 has been developed in that firm's laboratories here and in Switzerland.

Dr. T. F. Davey, head of the British Leprosy Research Unit Uzuakoli in Eastern Nigeria, tested CIBA 1906 for three years among leprosy victims in Africa. He reported in the January 1958 issue of **Leprosy Review** that it is "an antileprosy drug of considerable potential importance with outstanding qualities."

According to Dr. Davey, the drug's clinical and bacteriological activity was satisfactory and it prevented residual skin scarring and disfigurement when used with other active medications. He stated also that it was especially effective in treating children because its nontoxic nature allowed them the same dosage as adults.

Further investigations are now being conducted in 20 countries in Asia, Africa and South America. Additional clinical reports on the drug, its effects and potentials, will be presented at the International Leprosy Congress in New Delhi, India, in November. Dr. Rudolph L. Mayer, director of microbiology at the firm's plant here where the new compound was discovered, will attend the Congress.

VOLUME OF PHYSICIAN VISITS

The American people visited their physicians during the months of July, August and September, 1957, at a rate of almost five times a year, according to data gathered through household interviews by the U. S. National Health Survey.

The report, entitled "Preliminary Report on Volume of Physician Visits, United States, July-September 1957," is the first of a continuing series. Special weekly reports on the incidence of upper respiratory diseases have been issued by the Public Health Service for some time.

Future reports in the series will deal with disability, hospitalization, injuries, chronic illnesses and related health matters.

The report on physician visits points out that the interviews occurred at a time of year when people are normally least likely to call the doctor. The report notes that last year, however, respiratory diseases were probably at above-average levels.

Nine out of 10 of the physician visits were in the physicians' offices, the report shows.

GLAUCOMA

Glaucoma . . . a leading cause of blindness after age 40 . . . is an insidious disease afflicting over 1 million Americans.

Cholst, Goodstein, Berens and Cinotti (Department of Research, New York Eye and Ear In-

firmary) report in the J.A.M.A., March 15, 1958, a study of drugs and their effect upon the normal eye and in patients known to have glaucoma.

Glaucoma, characterized by increased ocular fluid tension, is often precipitated when drugs are given which dilate the pupil. Belladonna and atropine are drugs used for gastrointestinal antispasmodic action which dangerously increase ocular fluid pressure. They cause dilatation of the pupil, and this mechanically obstructs free-flow of fluid through the small diameter passage which normally maintains correct pressure.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

The Woman's Auxiliary to the Orleans Parish Medical Society entertained the members and their guests with a program tea on Wednesday afternoon, April 9th, at the Orleans Club.

Receiving in the drawing room with the president, Mrs. Eugene H. Countiss, were Mmes. David Bradley, Philip P. LaBruyere, W. Robyn Hardy, Jr., and Branch J. Aymond.

Mrs. Charles Farris, Jr., was chairman of the program which featured Mr. Nash Roberts, "Reports on the Weather".

As an added feature Mrs. Nicholas Chetta, essay contest chairman, and Mrs. Philip Johnson, co-chairman, introduced the four high school student winners in the essay contest on "The Advantages of Private Medical Care" or "The Advantages of the American Free Enterprise." First place winner Bonnie Sue Harris of Mt. Carmel Academy; second place, Glenn Gatipon, Jesuit High; third place, Marilyn Reilly, Fortier; fourth place, Albert Derbes, Jesuit High. The four winners, their parents and teachers were guests of honor at the tea.

Alternating in presiding at the tea and coffee services were Mmes. C. Barrett Kennedy, Martin O. Miller, Rufus H. Alldredge and George D. Feldner.

Hostesses assisting in the dining room were Mmes. Fred O. Brumfield, Edwin L. Zander, Joseph O. Weilbacher, Jr., Samuel Zurik, C. G. Wichser, Jack K. Wickstrom, Willard R. Wirth, Arthur J. White, Robert M. Willoughby, Harry Zoller, Guy Williams, Charles J. Wheeler, Joseph W. Wells, Morris J. Weisler, George E. Welch, and Bernard B. Weinstein.

"Doctors' Day," March 30th (Sunday), was beautifully celebrated. Mrs. George F. Sustendal was Chairman for Woman's Auxiliary to the Orleans Parish Medical Society.

Mayor Morrison issued a proclamation to honor the Doctors on March 30th.

The New Orleans newspapers had news articles pertaining to the observation of the day.

The clergy of the churches had prayers recited for the doctors.

The Woman's Auxiliary to the Orleans Parish Medical Society had red carnations and posters placed in the lobbies of the 15 hospitals throughout the city in honor of all our doctors.

Mrs. Branch J. Aymond,
Publicity Chairman.

BOOK REVIEWS

Collected Papers of the Mayo Clinic and Mayo Foundation; v.47 (1955), Philadelphia, W. B. Saunders Co., 1956, Illus., pp. 794. Price $12.50.

The latest edition of this valuable and well-known annual publication is a welcome addition to any physician's library. The articles chosen for inclusion have been selected primarily with the interests of the general practitioner, general surgeon, and the diagnostician in mind, with certain representative articles in the field of the specialties and basic sciences. The volume is made up of 734 papers of which 56 appear in full, 53 by abridgement, 28 by abstract and 597 by title only. Material is grouped by subject in the following categories: (1) Surgery of the Heart and Blood Vessels with Special reference to the Extracorporeal Bypass Pump-Oxygenator; (2) Blood and Circulating Organs; (3) Alimentary Tract; (4) Genitourinary Diseases; (5) Ductless Glands; (6) Dermatology; (7) Head, Trunk and Extremities; (8) Thorax; (9) Brain, Spinal Cord and Nerves; (10) Radiology; (11) Physical Medicine and Rehabilitation; (12) Anesthesia, Gas and Intravenous Therapy; (13) Miscellaneous.

Mary Louise Marshall

PUBLICATIONS RECEIVED

Doubleday & Company, Inc., N. Y.: You Can Increase Your Heart-Power, by Peter J. Steincrohn, M. D.

Grune & Stratton, Inc., N. Y.: Physical Dynamics of Character Structure; Bodily Form and Movement in Analytic Therapy, by Alexander Lowen, M. D.; The Medical Management of Cancer, by Henry D. Diamond, M. D.

Philosophical Library, N. Y.: The Atomic Age and Our Biological Future, by H. V. Brondsted, translated by E. M. Huggard; Fat Consumption and Coronary Disease: The Evolutionary Answer to This Problem, by T. L. Cleave, M.R.C.P.; Our Nuclear Adventure, its Possibilities and Perils, by D. G. Arnott.

The Williams & Wilkins Co., Baltimore: A Guide to Human Parasitology for Medical Practitioners (6th edit.), revised by T. H. Davey, M. D.

CONFIRMED THERAPEUTIC UTILITY



Pro-Banthine® "proved almost invariably effective in the relief of ulcer pain,

*in depressing gastric secretory volume and in inhibiting gastrointestinal motility."**

"Our findings were documented by an intensive and personal observation of these patients over a 2-year period in private practice, and in two large hospital clinics with close supervision and satisfactory follow-up studies."*

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Therapeutic utility and effectiveness of Pro-Banthine in the treatment of peptic ulcer are repeatedly referred to in the recent medical literature.

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The average adult oral dosage of Pro-Banthine is one tablet (15 mg.) with meals and two tablets at bedtime.

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*Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Pro-Banthine in the Treatment of Peptic Ulcer. A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies. Report of 60 Cases, Am. J. M. Sc. *232*:156 (Aug.) 1956.

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Start therapy with one or two 500 mg. tablets of 'DIURIL' once or twice a day.

BENEFITS:

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The dosage of other antihypertensive medication (reserpine, veratrum, hydralazine, etc.) is adjusted as indicated by patient response. If the patient is established on a ganglionic blocking agent (e.g., 'INVERSINE') this should be continued, but the total daily dose should be *immediately* reduced by 25 to 50 per cent. This will reduce the serious side effects often observed with ganglionic blockade.

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The patient must be frequently observed and careful adjustment of all agents should be made to determine optimal maintenance dosage.



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- improves and simplifies the management of hypertension
- markedly enhances the effects of antihypertensive agents
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Smooth, more trouble-free management of hypertension with 'DIURIL'

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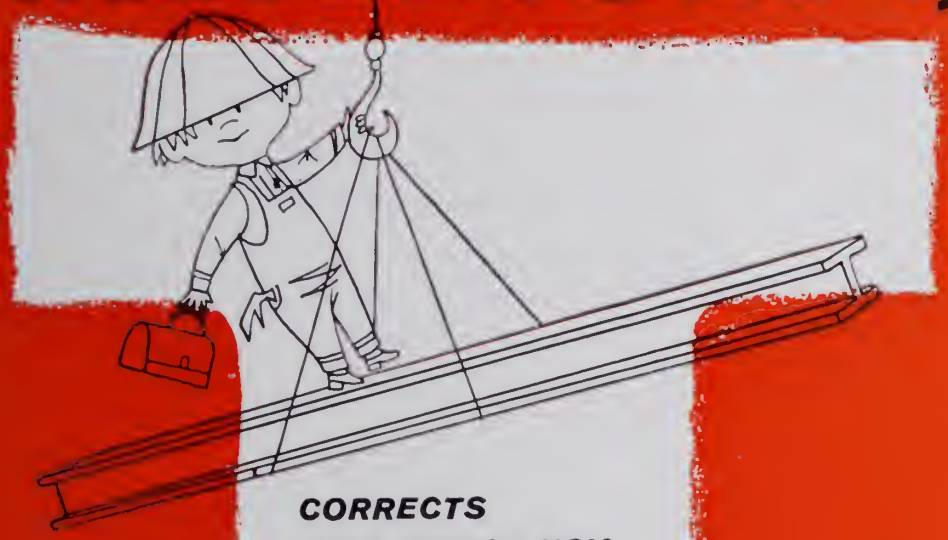
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Charles L. Bloss, M. D., Medical Director
Howard M. Burkett, M. D., Associate Psychiatrist
James K. Peden, M. D., Associate Psychiatrist
Ward G. Dixon, M. D., Associate Psychiatrist
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C. L. Jackson, M. D., Associate Psychiatrist
LeeOwen S. Buford, M. D., Associate Psychiatrist
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Belvin A. Simmons, M. D., Resident Psychiatrist
E. Clay Griffith, M. D., Resident Psychiatrist

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Supplies essential Iron as ferric pyrophosphate, highly stable, well-tolerated, readily absorbed; essential vitamins B_1, B_6 and B_{12}, established as appetite stimulants; essential l-Lysine for greater protein economy in the pediatric diet.

INCREMIN Syrup

FORMULA: Each teaspoonful (5 cc.) contains:

l-Lysine HCl	300 mg.
Ferric Pyrophosphate (Soluble)	250 mg.
Iron (as Ferric Pyrophosphate)	30 mg.
Vitamin B_{12} Crystalline	25 mcgm.
Thiamine Mononitrate (B_1)	10 mg.
Pyridoxine HCl (B_6)	5 mg.
Alcohol	0.75%

Average dosage is 1 teaspoonful daily.
Available in bottles of 4 fl. oz.

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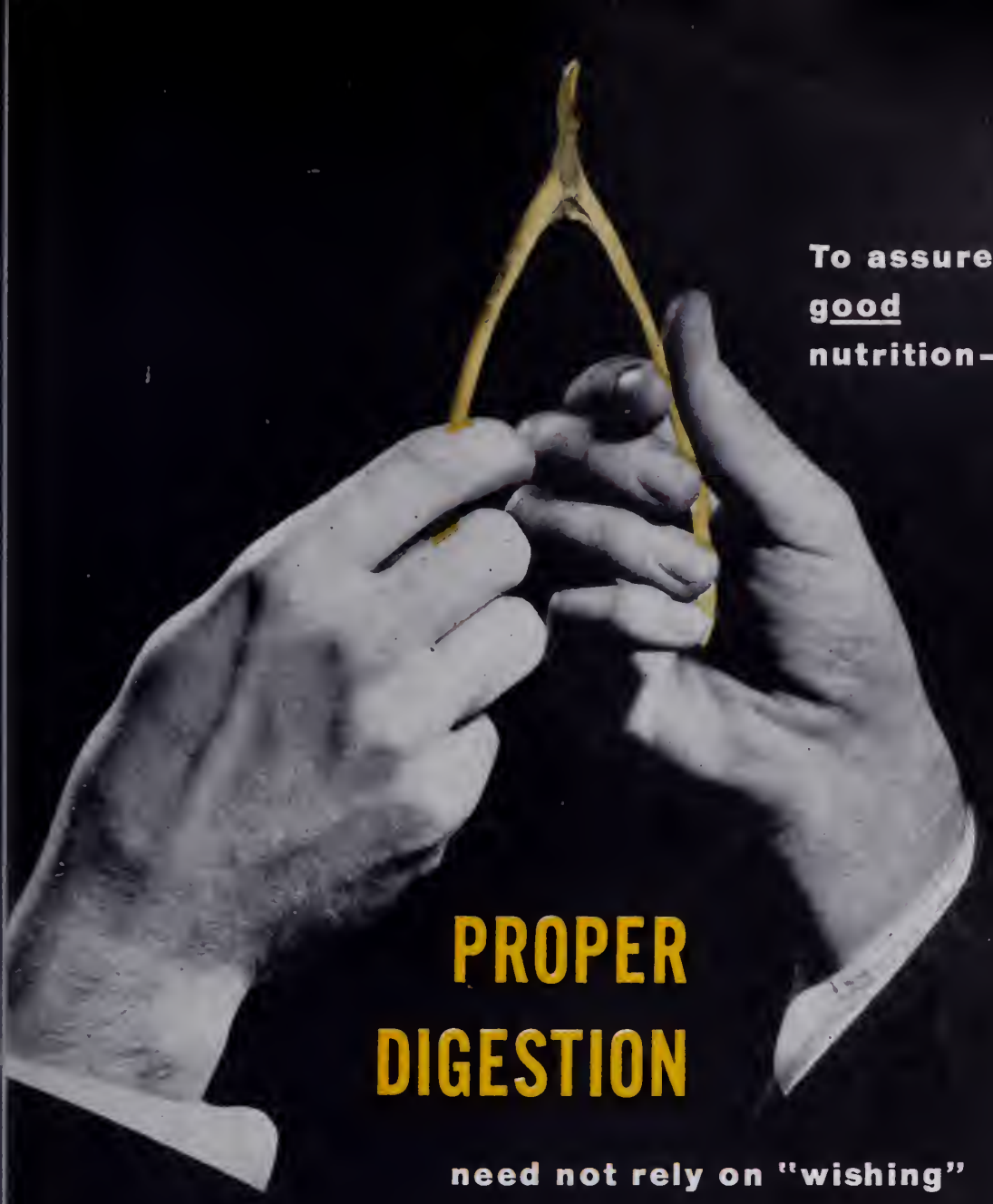
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As a comprehensive supplement to deficient natural secretion of digestive enzymes, particularly in older patients, ENTOZYME effectively improves nutrition by bridging the gap between adequate ingestion and proper digestion. Among patients of all ages, it has proved helpful in chronic cholecystitis, post-cholecystectomy syndrome, subtotal gastrectomy, pancreatitis, dyspepsia, food intolerance, flatulence, nausea and chronic nutritional disturbances.

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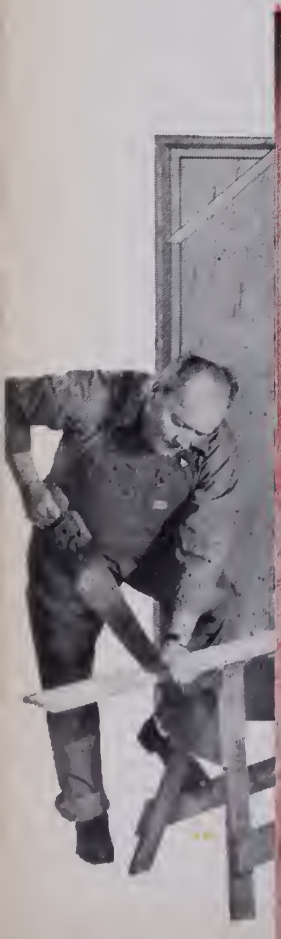
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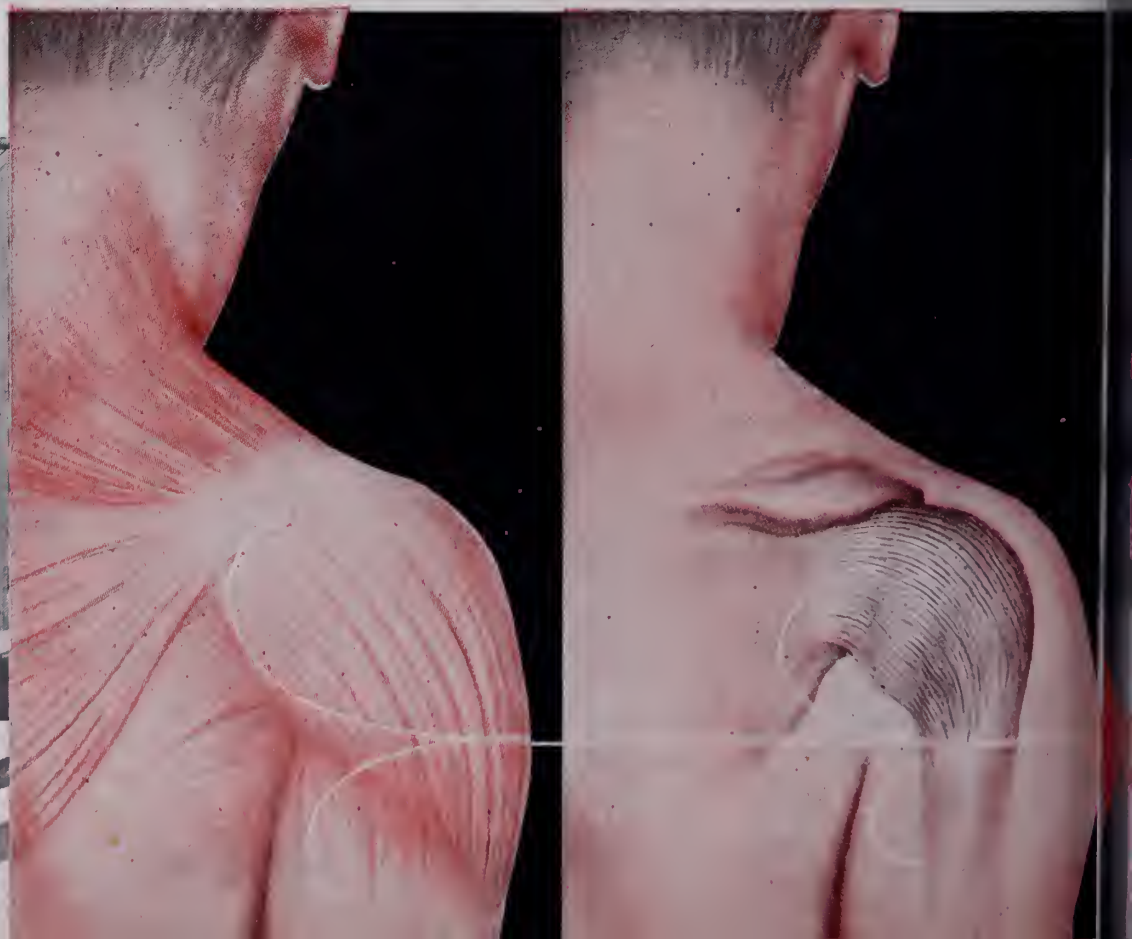
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"Rheumatoid arthritis is a constitutional disease with symptoms affecting chiefly joints and muscles."[1] "Pain in the affected joint is accompanied by splinting of the adjacent muscles, with resultant 'muscle spasm.'"[2]





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MEPROLONE is the only anti-rheumatic-antiarthritic designed to relieve simultaneously (a) muscle spasm (b) joint-muscle inflammation (c) physical distress . . . and may thereby help prevent deformity and disability in more arthritic patients to a greater degree than ever before.

SUPPLIED: Multiple Compressed Tablets in bottles of 100, in three formulas:
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MEPROLONE-1—supplies 1.0 mg. prednisolone in the same formula as MEPROLONE-2.

1. Comroe's Arthritis: Hollander, J. L., p. 149 (Fifth Edition, Lea & Febiger, Philadelphia, Pa. 1953).
2. Merck Manual: Lyght, C. E., p. 1102 (Ninth Edition, Merck & Co., Inc., Rahway, N. J. 1956).

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'Cardilate' tablets  shaped for easy retention in the buccal pouch

"... the degree of increase in exercise tolerance which sublingual erythrol tetranitrate permits, approximates that of nitroglycerin, amyl nitrite and octyl nitrite more closely than does any other of the approximately 100 preparations tested to date in this laboratory."

"Furthermore, the duration of this beneficial action is prolonged sufficiently to make this method of treatment of practical clinical value."

Riseman, J. E. F., Altman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites In the Treatment of Angina Pectoris. Circulation (Jan.) 1958.

* 'Cardilate' brand Erythrol Tetranitrate SUBLINGUAL TABLETS, 15 mg. scored



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Percentage reduction of excess serum cholesterol (over 150 mg. percent)	Percentage of patients experiencing various degrees of decline in excess serum cholesterol
Less than 20%	12.5%
20-40%	55 %
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. . . without the necessity of dietary restrictions

'Cytellin' provides the most rational and practical therapy available. Without any dietary adjustments, it lowers elevated serum cholesterol concentrations in most patients.

In a number of studies, every patient who co-operated obtained good results from 'Cytellin' therapy. On the average, a 34 percent reduction of excess serum cholesterol (over 150 mg. percent) has been experienced.

In addition to lowering hypercholesteremia, 'Cytellin' has been reported to effect reductions in C/P ratio, S_f10-100 and S_f12-400 lipoproteins, "atherogenic index," beta lipoproteins, and total lipids.

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*'Cytellin' (Sitosterols, Lilly)

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Low Dosage KYN for G.U. Infections

Unusual Antibacterial and Anti-infective Properties. More rapid absorption . . . higher and better sustained plasma concentrations . . . more soluble in acid urine than other sulfonamides . . . freedom from crystalluria and absence of significant accumulation of drug, even in patients with azotemia. [1]

Unprecedented Low Dosage. Less sulfa for the kidney to cope with . . . yet fully effective. A single daily dose of 0.5 to 1.0 Gm. (1 to 2 tablets) maintains higher plasma levels than 4 to 6 Gm. daily of other sulfonamides —a notable asset in prolonged therapy. [2]

New Control Over Sulfonamide-sensitive Organisms. KYNEX maintains the prolonged, high tissue concentrations of primary importance in treatment of urinary infections . . . a therapeutic asset toward preventing manifest pyelonephritis as a complication of persistent bacteriuria during pregnancy and puerperium. Maintenance of sterile urine in such patients was accomplished with 1 tablet of KYNEX daily. [3]

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Dosage: The recommended adult dose is 1 Gm. (2 tablets) the first day, followed by 0.5 Gm. (1 tablet) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours. Dosage in children, according to weight; i.e., a 40 lb. child should receive ¼ of the adult dosage. It is recommended that these dosages not be exceeded.

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Tablets: Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

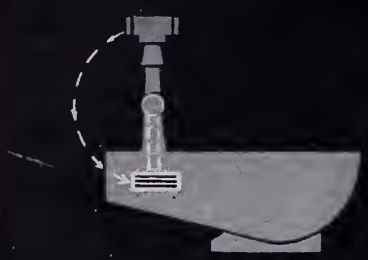
Syrup: Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

References: 1. Grieble, H. C. and Jackson, G. G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958. 2. Editorial *New England J. Med.* 258:48-49,1958. 3. Jones, W. F., Jr. and Finland, M., Sulfamethoxypyridazine and Sulfachloropyridazine. *Ann. New York Acad. Sc.* 60:473-483, 1957.

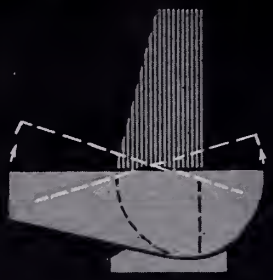
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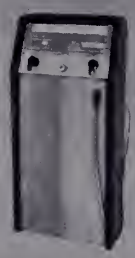
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See anybody here you know, Doctor?

I'm just too much

I'm too little

I'm simply two

And I'm getting brittle

With my anemia, I'll never make it up that high





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Which plasma proteins may be hazardous in renal disease?



The globulins. They are more easily precipitated to form casts with blockage of renal tubules. The greater the damage to the glomeruli, the greater the proportion of urinary globulin to albumin and subsequent tubular impairment.

Source—Hoffman, W. S.: The Biochemistry of Clinical Medicine, Chicago, The Year Book Publishers, Inc., 1954, p. 233.

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just dip...

ALBUSTIX® BRAND Reagent Strips ...and read in mg. %

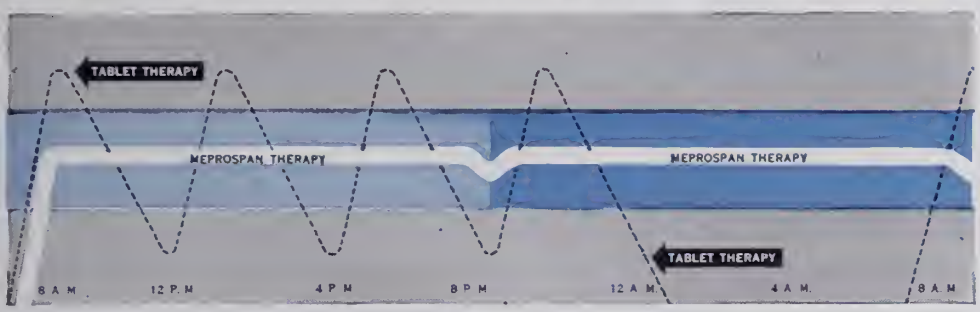
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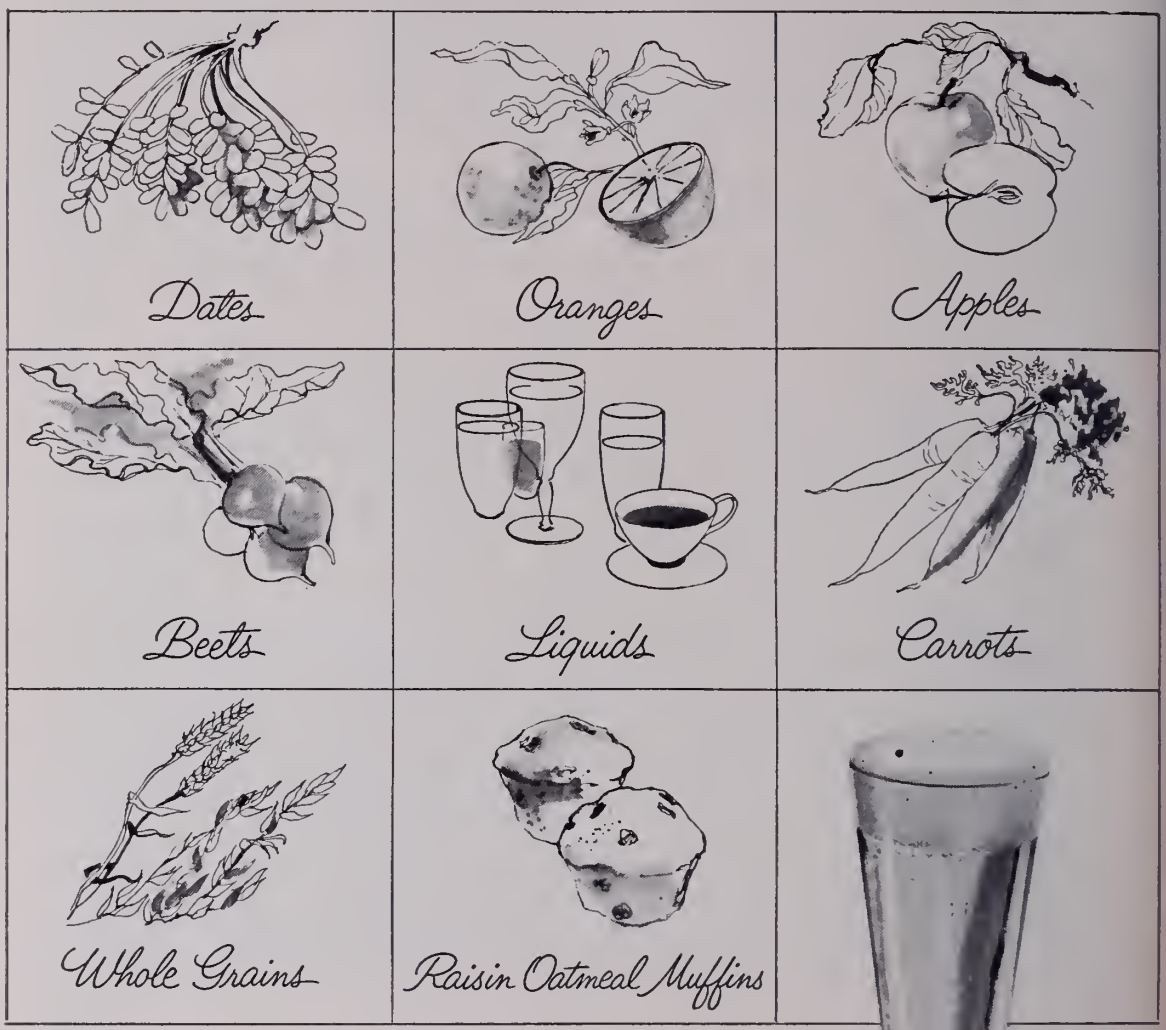
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- simplifies patient's dosage schedule

Dosage: Two Meprospan capsules q. 12 h.
Supplied: Bottles of 30 capsules.
Each capsule contains:
Meprobamate (Wallace) .....200 mg.
2-methyl-2-n-propyl-1,3-propanediol dicarbamate

Literature and samples on request.

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makes the "Regularity" diet work!

And may we suggest a glass of beer to increase the fluid intake?

The "Regularity" Diet

● Fruits and vegetables, raw or cooked, are high in cellulose. Oranges and apples, beets and carrots also provide pectin which absorbs more fluid to form especially smooth bulk.

Whole grains contain cellulose and Vitamin B Complex as well. Lots of liquid is important to make the cellulose bulky—about 8 to 10 glasses a day. And some of it might be beer.*

For appetite appeal your patient can team apples with dates. Raisins or fresh cranberries make a tasty surprise in oatmeal muffins.

When your patient makes these bulk-producing foods appetizing, he's likely to include them in his regular diet.

*An 8-oz. glass of beer supplies about ¼ the minimum requirement of Niacin as well as smaller amounts of other B Complex vitamins. (Average of American beers)

United States Brewers Foundation
Beer—America's Beverage of Moderation

If you'd like reprints of this and 11 other dietary suggestions, please write United States Brewers Foundation, 535 Fifth Avenue, New York 17, N. Y.

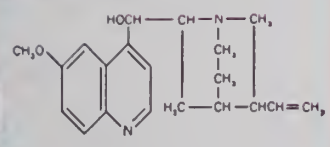
Progress in SYNTHETIC CHEMISTRY
EQUALS
Progress in CHEMOTHERAPEUTICS

"It has a high degree of clinical safety. . . It is considered to be the preferred antimalarial drug for treatment of disorders of connective tissue, because of the low incidence of gastrointestinal distress as compared to that with chloroquine phosphate."[1]

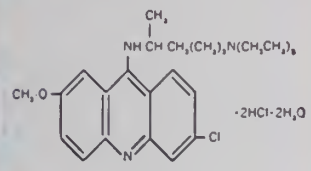
". . . Plaquenil is decidedly less toxic and better tolerated by the average patient, even in high dosage, than is chloroquine."[2]

". . . the least toxic of its class . . ."[3]

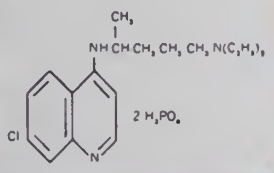
QUININE



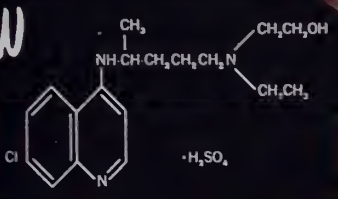
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ARALEN® PHOSPHATE



Now





Plaquenil® SULFATE

Remarkably effective in RHEUMATOID ARTHRITIS

SIDE EFFECTS MARKEDLY REDUCED

DOSE **Initial** – 400 to 600 mg. (2 or 3 tablets) Plaquenil sulfate daily.
Maintenance – 200 to 400 mg. (1 or 2 tablets) daily.

SUPPLIED Tablets of 200 mg., bottles of 100.

Write for Booklet

Winthrop LABORATORIES NEW YORK 18 N. Y.

[1] Slaughter, S.L., and Harrison, J.W.: *Cleveland Clin. Quart.* 24:98, Apr. 1957

For Speedier Return to Normal Nutrition

Meat...

and the Medically Acceptable Reducing Diet

In any medically acceptable reducing diet prescribed today, meat can serve as an important nutritional component.

Curtailment of the daily calorie allowance must not deny the patient the protein, vitamins, and minerals required for good nutritional health. Fad diets which eliminate certain basic foods can hardly be considered medically acceptable.

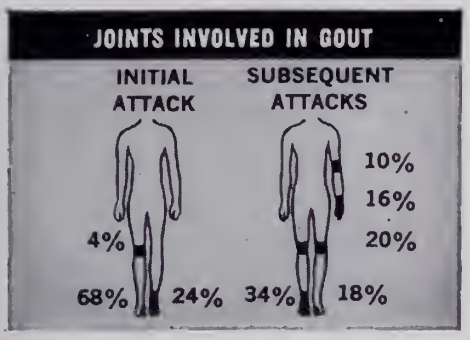
Calorie for calorie, no other commonly eaten food supplies the quality and quantity of protein which lean meat provides. Its B vitamins and minerals are needed daily, regardless of calorie restrictions.

Even when coexistent pathological conditions require that the calorie-reduced diet be further limited to foods low in fiber or in sodium, meat fills the same important place in each day's food allowance. The fat content of lean meat is relatively low, and meat can be prepared in various ways, as called for by almost every special diet.

In any diet which must deviate from accustomed eating habits, the taste appeal of meat makes it easier for the patient to adhere to the restrictions imposed.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

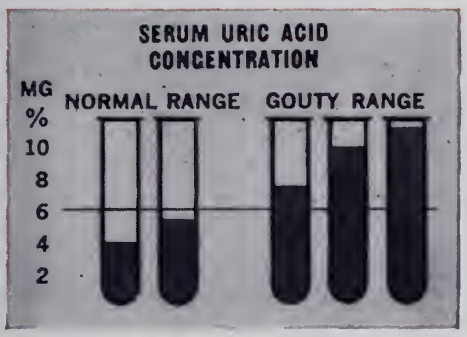
American Meat Institute
Main Office, Chicago... Members Throughout the United States



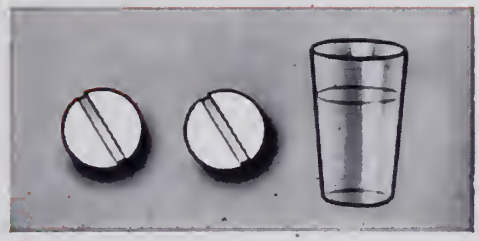
1. Recurrent joint pain followed by long periods of complete remission. *(Percentages refer to incidence.)*



2. Enlargement of bursae such as in this case involving the olecranon bursa.



3. Elevated serum uric acid levels.



4. Colchicine test: full dose (0.5 mg.) every 1 to 2 hours until pain is relieved or nausea, vomiting or diarrhea occur. The test requires usually 8 to 16 doses. Pain relief is highly indicative of gout.

FROM THESE FINDINGS...SUSPECT GOUT:

℞ BENEMID®

PROBENECID

A SPECIFIC FOR GOUT

Once findings point to gout, long-term management can be started with BENEMID. This effective uricosuric agent has these unique benefits:

- Urinary excretion of uric acid is approximately doubled.
- Serum uric acid levels are reduced.
- Uric acid deposits (tophi) in tissues are mobilized.
- Formation of new tophi can often be prevented.
- Fewer attacks and severity is reduced.

RECOMMENDED DOSAGE: 0.25 Gm. (¼ tablet) twice daily for one week followed by 1 Gm. (2 tablets) daily in divided doses.

BENEMID is a trade-mark of Merck & Co., Inc.

MSD

MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

Doctors, too,  *like "Premarin"*

The reasons are fairly simple. Doctors like "Premarin," in the first place, because it really relieves the symptoms of the menopause. It doesn't just mask them — it replaces what the patient lacks — natural estrogen.

Furthermore, if the patient is suffering from headache, insomnia, and arthritic-like symptoms before the menopause and even after, "Premarin" takes care of that, too.

Women, of course, like "Premarin," too, because it quickly relieves their symptoms and gives them a "sense of well-being."

"PREMARIN"®
conjugated estrogens (equine)

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METHOCARBAMOL 'ROBINS', U.S. PAT. NO. 2770649

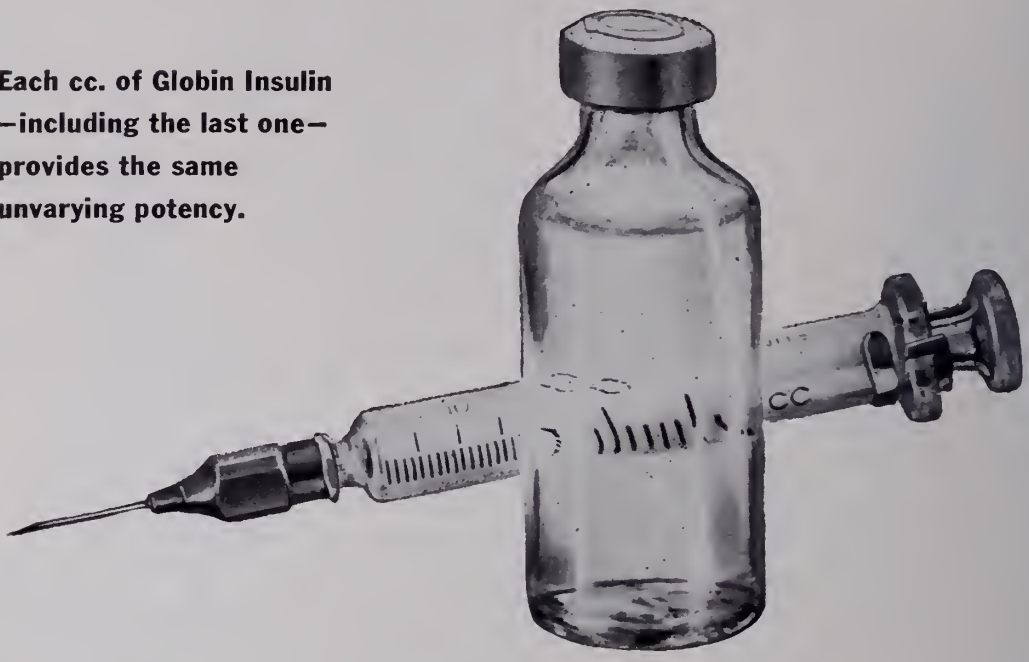
Supply:
Tablets, 0.5 Gm., bottles of 50.

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Ethical Pharmaceuticals of Merit since 1878

Avoid "BOTTOM OF THE VIAL" reactions

Each cc. of Globin Insulin —including the last one— provides the same unvarying potency.



Of the intermediate-acting insulins, only Globin Insulin is a clear solution.

24-hour control for the majority of diabetics

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with new

CARTRAX*

PETN + ATARAX®

(PENTAERYTHRITOL TETRANITRATE) (BRAND OF HYDROXYZINE)

why PETN? *For cardiac effect:* PETN is ". . . the most effective drug currently available for prolonged prophylactic treatment of angina pectoris."[1] Prevents about 80% of anginal attacks.

why ATARAX? *For ataractic effect:* One of the most effective—and probably the safest—of tranquilizers, ATARAX frees the angina patient of his constant tension and anxiety. Ideal for the on-the-job patient. And ATARAX has a unique advantage in cardiac therapy: it is anti-arrhythmic and non-hypotensive.

why combine the two? *For greater therapeutic success:* In clinical trials, CARTRAX was demonstrably superior to previous therapy, including PETN alone. Specifically, 87% of angina patients did better. They were shown to suffer fewer attacks . . . require less nitroglycerin . . . have increased tolerance to physical effort . . . and be freed of cardiac fixation.

1. Russek, H. I.: Postgrad. Med. *19*:562 (June) 1956.

Dosage and Supplied: Begin with 1 to 2 yellow CARTRAX "10" tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. When indicated this may be increased by switching to pink CARTRAX "20" tablets (20 mg. PETN plus 10 mg. ATARAX.) For convenience, write "CARTRAX 10" or "CARTRAX 20." In bottles of 100.

CARTRAX should be taken 30 to 60 minutes *before* meals, on a continuous dosage schedule. Use PETN preparations with caution in glaucoma.

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1. Hodges, F. T.: *GP* 14:86, Nov., 1956.

pHisoHex®

Sudsing nonalkaline antibacterial detergent—nonirritating, hypoallergenic. Contains 3% hexachlorophene.

Winthrop LABORATORIES New York 18, N. Y.



Of special significance to the physician is the symbol

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When the physician writes "DR" (Davies, Rose) on his prescriptions for Tablets Quinidine Sulfate, he is assured that this "quality" tablet is dispensed to his patient.

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0.2 Gram (or 3 grains)
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"It happened at work while he was putting oil in something"



"He told Mom his shoulder felt like it was on fire"



"He couldn't swing a bat without hurting"



"But Doctor gave him some nice pills--and the pain went away fast"



"Dad said we'd play ball again tomorrow when he comes home"



AND THE PAIN WENT AWAY FAST

FOR PAIN

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(Salts of Dihydrohydroxycodeinone and Homatropine, plus APC) **TABLETS**

ACTS FASTER...
usually within 5-15 minutes

LASTS LONGER...
usually for 6 hours or more

MORE THOROUGH RELIEF...
permits uninterrupted sleep through the night

RARELY CONSTIPATES...
excellent for chronic or bedridden patients

and now... **NEW**

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VERSATILE

New "demi" strength permits dosage flexibility to meet each patient's specific needs. PERCODAN-DEMI provides the PERCODAN formula with one-half the amount of salts of dihydrohydroxycodeinone and homatropine.

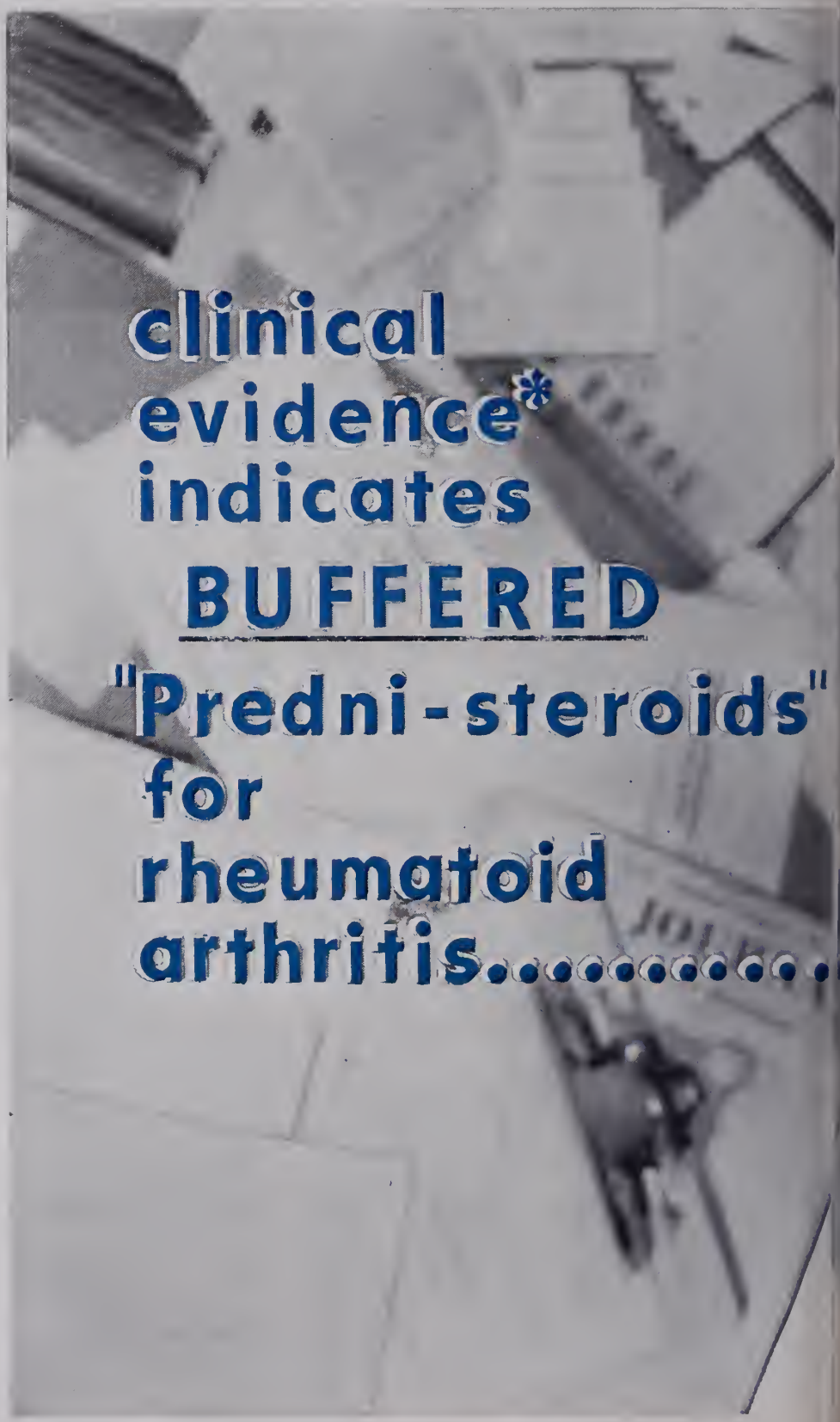
AVERAGE ADULT DOSE: 1 tablet every 6 hours. May be habit-forming. Available through all pharmacies.

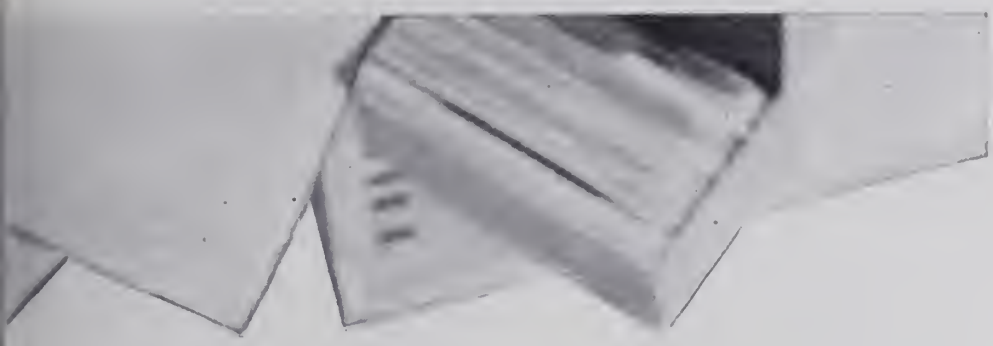
Each PERCODAN* Tablet contains 4.50 mg. dihydrohydroxycodeinone hydrochloride, 0.38 mg. dihydrohydroxycodeinone terephthalate, 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. phenacetin, and 32 mg. caffeine.

Literature? Write

Endo® **ENDO LABORATORIES**
Richmond Hill 18, New York

*U.S. Pat. 2,628,185


clinical
evidence*
indicates
BUFFERED
"Predni-steroids"
for
rheumatoid
arthritis.....



Gastric distress accompanying "predni-steroid" therapy is a definite clinical problem — well documented in a growing body of literature.

iew of the beneficial re- observed when antacids d diets were used concom- th prednisone and predni- e feel that these measures e employed prophylacti- offset any gastrointestinal ts."—Dordick, J. R. *et al.*: te J. Med. 57:2049 (June).

*"It is our growing conviction that all patients receiving oral steroids should take each dose after food or with adequate buffering with aluminum or magnesium hydroxide preparations."—Sigler, J. W. and Ensign, D. C.: J. Kentucky State M. A. 54:771 (Sept.) 1956.

*"The apparent high incidence of this serious [gastric] side effect in patients receiving prednisone or prednisolone suggests the advisability of routine co-administration of an aluminum hydroxide gel."—Bollet, A. J. and Bunim, J. J.: J. A. M. A. 158:459 (June 11) 1955.

One way to make sure that patients receive full benefits of "predni-steroid" therapy plus positive protection against gastric distress is by prescribing CO-DELTRA or CO-HYDELTRA.

o-Deltra.®
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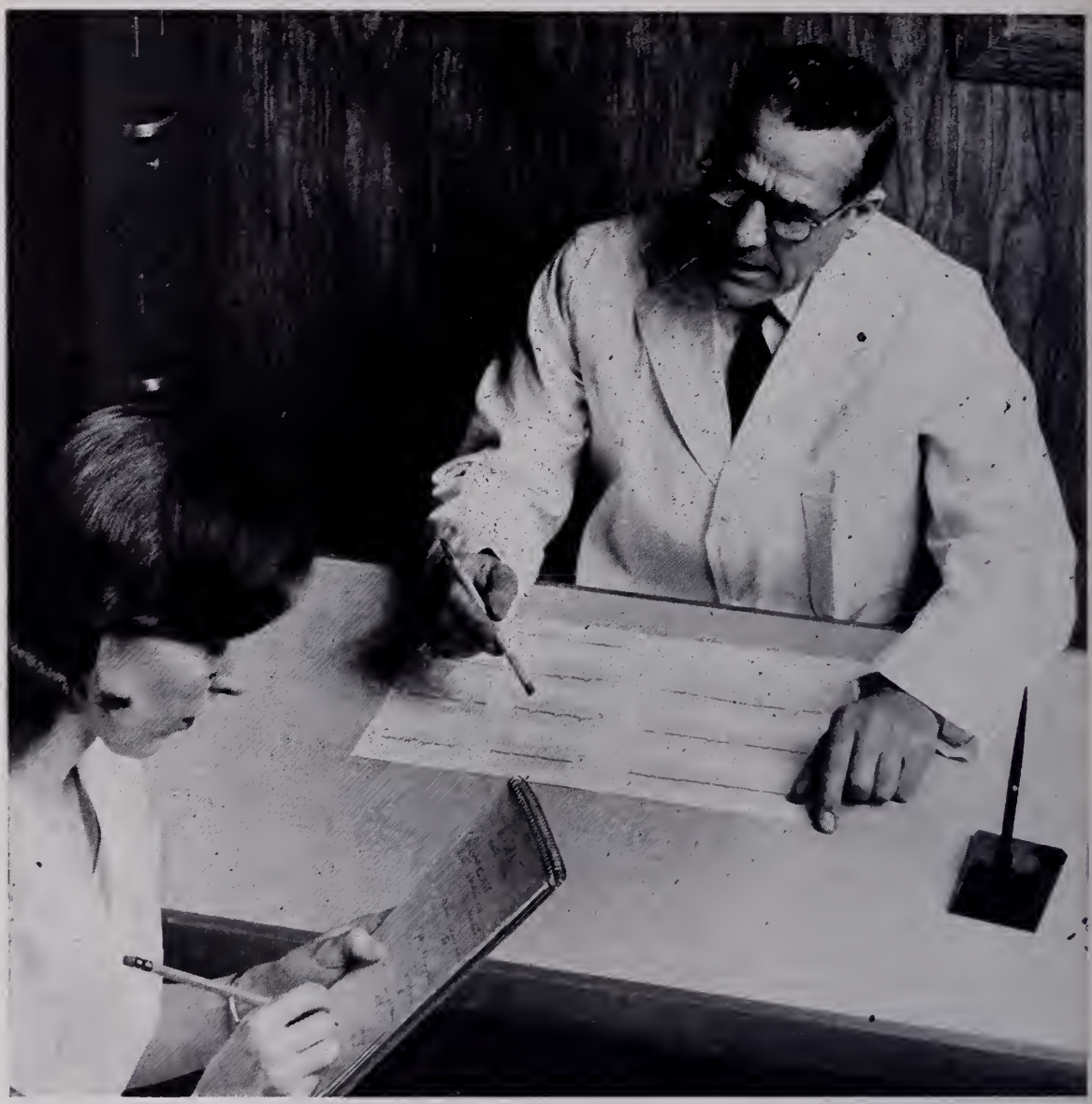
provide all the benefits of "Predni-steroid" therapy— plus positive antacid protection against gastric distress

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PREDNISOLONE BUFFERED



2.5 mg. or 5.0 mg. of prednisone or prednisolone, plus 300 mg. of dried aluminum hydroxide gel and 50 mg. magnesium trisilicate, in bottles of 30, 100, 500.

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"Nocturia and orthopnea have disappeared since he's on NEOHYDRIN—and he's edema-free when he wakes in the morning."

oral
organomercurial
diuretic

TABLET
NEOHYDRIN®
BRAND OF CHLORMERODRIN

LAKESIDE

24958

base or the hydrochloride alone. In addition, the average levels derived from the tetracycline base or the chlortetracycline base were higher than those produced by the corresponding hydrochloride though lower than those resulting from the mixture containing the base and sodium metaphosphate. In the study with chlortetracycline[6] capsules containing a mixture of the hydrochloride and sodium metaphosphate were also included in the crossover, and the average levels produced by these capsules were the same as with the mixture of chlortetracycline base with sodium metaphosphate.

Although the enhancement of blood levels of tetracycline by phosphate, either complexed to the tetracycline or mixed with the base or the hydrochloride, thus seemed fairly well established, some doubts still remained because certain reliable observers (including many whose results have not been published) failed to confirm the findings with the materials and methods they used. Further confusion seemed to be added by a subsequent report of Welch et al.,[7] who, in repeating a crossover study with capsules of tetracycline phosphate complex and tetracycline hydrochloride with and without sodium metaphosphate, found [illegible]

antibacterial activity than was observed in their absence. Oil and sorbitol did not interfere with tetracycline absorption.

Dicalcium phosphate is widely used as a filler in various capsules, including those of the tetracyclines. The authors cite a large number of other studies that implicate the presence of calcium ions as the cause of the reduced absorption of tetracyclines and show that citric acid can partially neutralize this effect. The depressing effect of food on the serum levels of tetracycline is likewise explained by the goodly amount of minerals contained in commercial laboratory diets, and they postulate that the multivalent cations may be responsible for the poorer absorption of the drug. The authors could not explain the failure of citric acid to enhance serum concentrations when administered with tetracycline base in contrast to its marked effect when given as the hydrochloride. However, they hypothesized that the ability of citric acid to enhance serum levels of tetracycline is related to its ability to form complexes [illegible]

"...Tetracycline hydrochloride and citric acid, in an encapsulated mixture, produced higher serum concentrations and greater urinary excretions, and hence better absorption of tetracyclines, than any other preparation studied..."

[illegible] et al.[7] indicates that in their study the capsules of tetracycline hydrochloride, chlortetracycline hydrochloride and tetracycline phosphate complex all contained dicalcium phosphate as a filler, whereas the capsules containing citric acid and sodium hexametaphosphate did not contain any dicalcium phosphate. This could clearly explain the discrepancies noted in that study. Likewise, the inconsistencies in other studies may very well have been due to the [illegible] of calcium as fillers in some [illegible] others.

[illegible] however,

Editorial.
The New England Journal of Medicine.
258:97-99, (January 9) 1958.

ACHROMYCIN*V

TETRACYCLINE HCl BUFFERED WITH CITRIC ACID

is tetracycline and citric acid

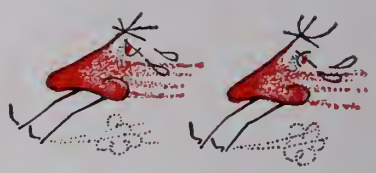
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*Reg. U. S. Pat. Off.



running noses . . .



caused by pollen allergies

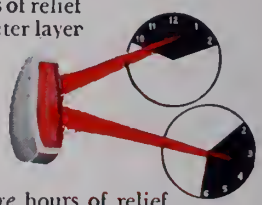
TRIAMINIC stops rhinorrhea, congestion and other distressing symptoms of summer allergies, including hay fever. Running nose, watery eyes and sneezing are best relieved by antihistamine *plus* decongestant action – systemically – with TRIAMINIC.

This new approach frequently succeeds where less complete therapy has failed. It is not enough merely to use histamine antagonists; ideally, therapy must be aimed also at the congestion of the nasal mucosa. Triaminic provides such effective combined therapy in a single timed-release tablet.

TRIAMINIC brings relief in minutes—lasts for hours. Running noses stop, congested noses open—and stay open for 6 to 8 hours.

Triaminic provides around-the-clock freedom from allergic congestion with just one tablet t.i.d. because of the special timed-release design.

first—3 to 4 hours of relief from the outer layer



then—3 to 4 *more* hours of relief from the inner core

Dosage: One tablet in the morning, mid-afternoon and at bedtime. In postnasal drip, one tablet at bedtime is usually sufficient.

Each timed-release TRIAMINIC Tablet contains:

Phenylpropanolamine HCl	50 mg.
Pheniramine maleate	25 mg.
Pyrilamine maleate	25 mg.

TRIAMINIC FOR THE PEDIATRIC PATIENT

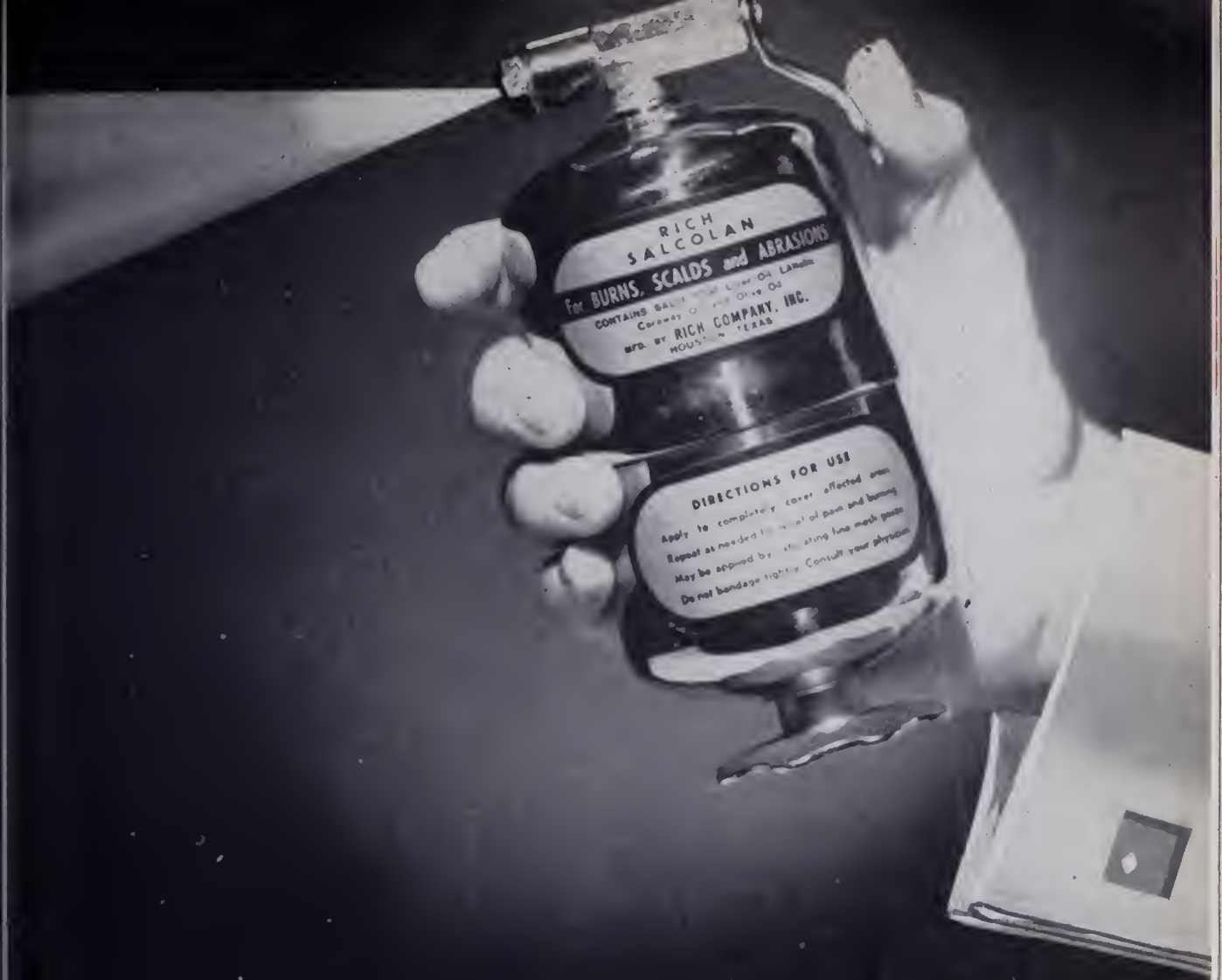
TRIAMINIC Juvelets*, providing easy-to-swallow half-dosages for the 6- to 12-year-old child, with the timed-release construction for prolonged relief.

TRIAMINIC Syrup, for those children and adults who prefer a liquid medication. Each 5 ml. teaspoonful is equivalent to ¼ Triaminic Tablet or ½ Triaminic Juvelet.

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★ Clinical reports, samples, and descriptive brochure may be had upon request. Please write us on your letterhead.

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in each of these indications for a tranquilizer...



SR is a cardiac patient. His doctor put him on ATARAX because (+) it is an anti-arrhythmic and non-hypotensive tranquilizer.



Other tranquilizers added to PN's g. i. discomfort (he has ulcers). But now his doctor has him on ATARAX because (+) it lowers gastric secretion while it tranquilizes.



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Senile anxiety and persecution complex dogged Mrs. K. until her doctor prescribed ATARAX Syrup. (+) It tastes good, and it's a perfect vehicle for Mrs. K's tonic.

Dosage: Children, 1-2 *10 mg.* tablets or 1-2 tsp. Syrup t.i.d. Adults, one *25 mg.* tablet or 1 tbsp. Syrup q.i.d.

Supplied: 10, 25 and 100 mg. tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.

...ATARAX® (BRAND OF HYDROXYZINE) gives you an extra benefit

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IN ALL DIARRHEAS . . . REGARDLESS OF ETIOLOGY

comprehensive control with **CREMOMYCIN**®

SULFASUXIDINE* PECTIN-KAOLIN-NEOMYCIN SUSPENSION

SOOTHING ACTION . . . Kaolin and pectin coat and soothe the inflamed mucosa, adsorb toxins and help reduce intestinal hypermotility.

BROAD THERAPY . . . The combined antibacterial effectiveness of neomycin and Sulfasuxidine is concentrated in the bowel since the absorption of both agents is negligible.

LOCAL IRRITATION IS REDUCED and control is instituted against spread of infective organisms and loss of body fluid.

PALATABLE creamy pink, fruit-flavored CREMOMYCIN is pleasant tasting, readily accepted by patients of all ages.

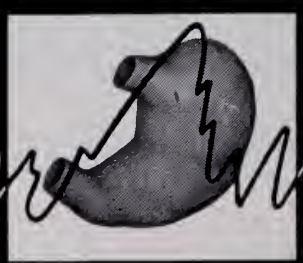
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MSD MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

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for "the butterfly stomach"



Pavatrine® with Phenobarbital

125 mg. 15 mg.

- *is an effective dual antispasmodic*
- *combining musculotropic and neurotropic action with mild central nervous system sedation.*

dosage: one tablet before each meal and at bedtime. SEARLE

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It is interesting and important to note that during the past several years the percentage of all reported primary and secondary cases of syphilis in Louisiana submitted by private practitioners was 2% to 9%, whereas for the whole United States the figure ranged around 40%. It is clear, therefore, that closer collaboration between practitioners and public health officials is essential to solve our syphilis problem.

The primary reason for morbidity reporting by physicians to the State Department of Health is to alert the Department to the occurrence of venereal diseases, so that preventive and control measures may be instituted in the area of occurrence, and also to measure the trend of occurrence of this disease in our State. All reports received by the Health Department from physicians are kept strictly confidential.



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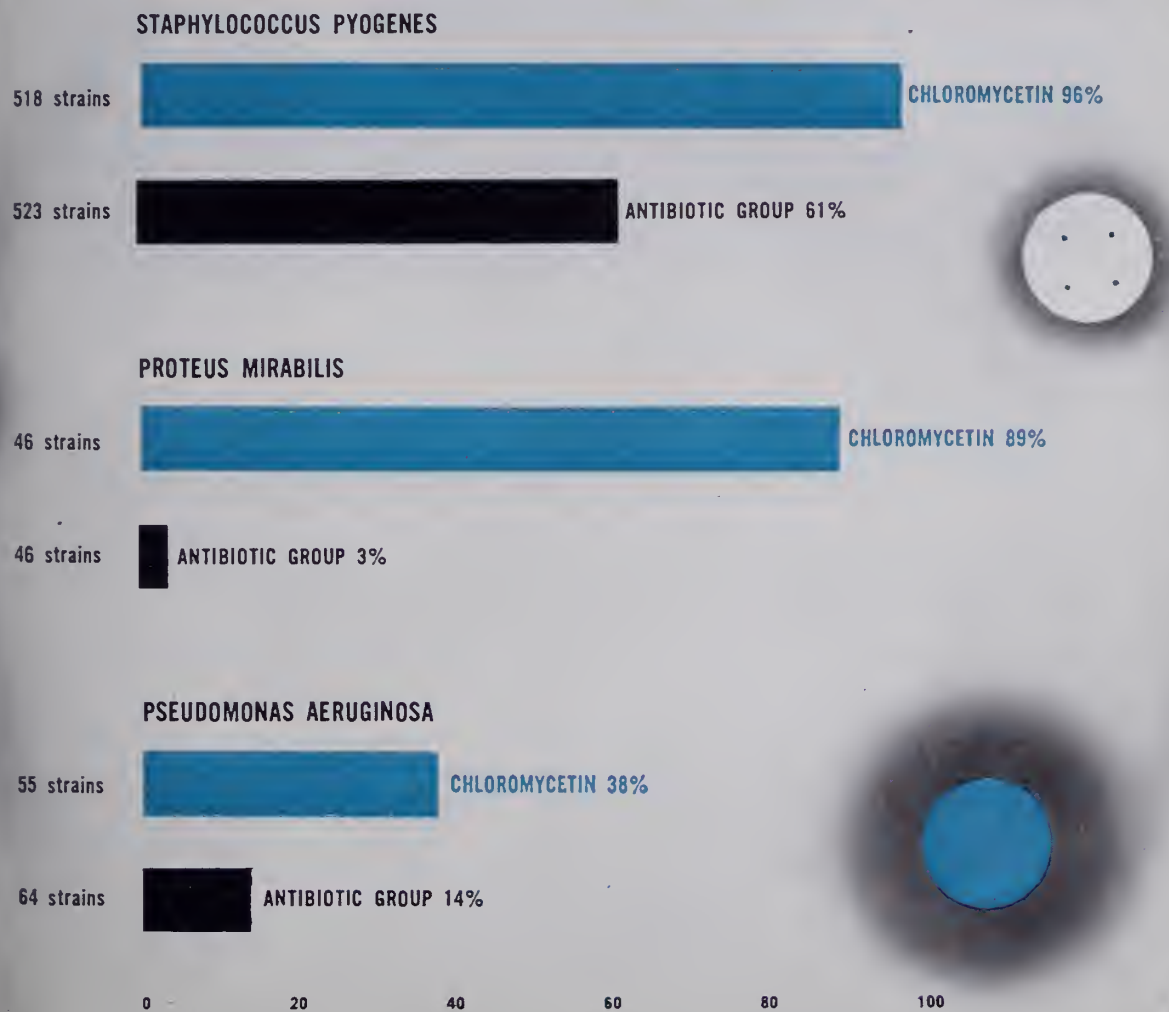
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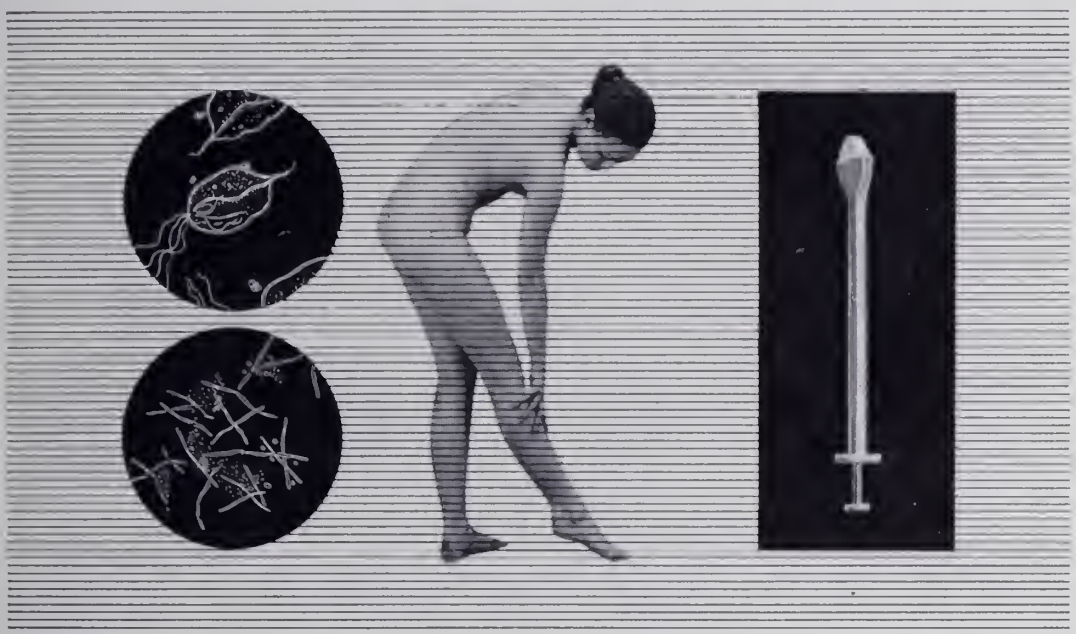
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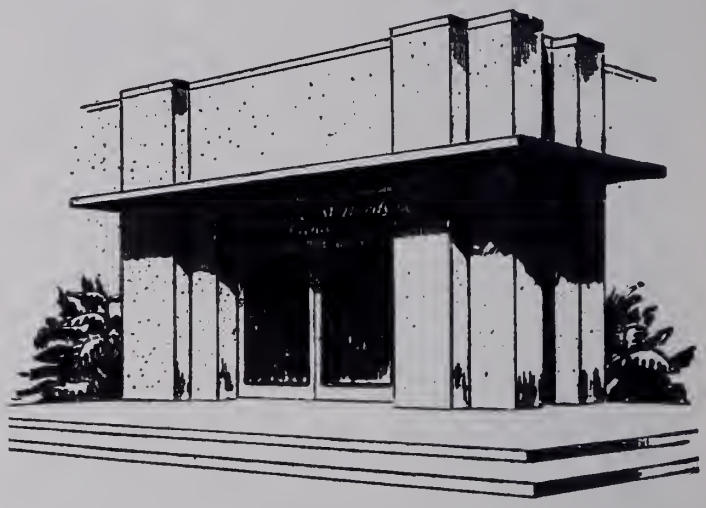
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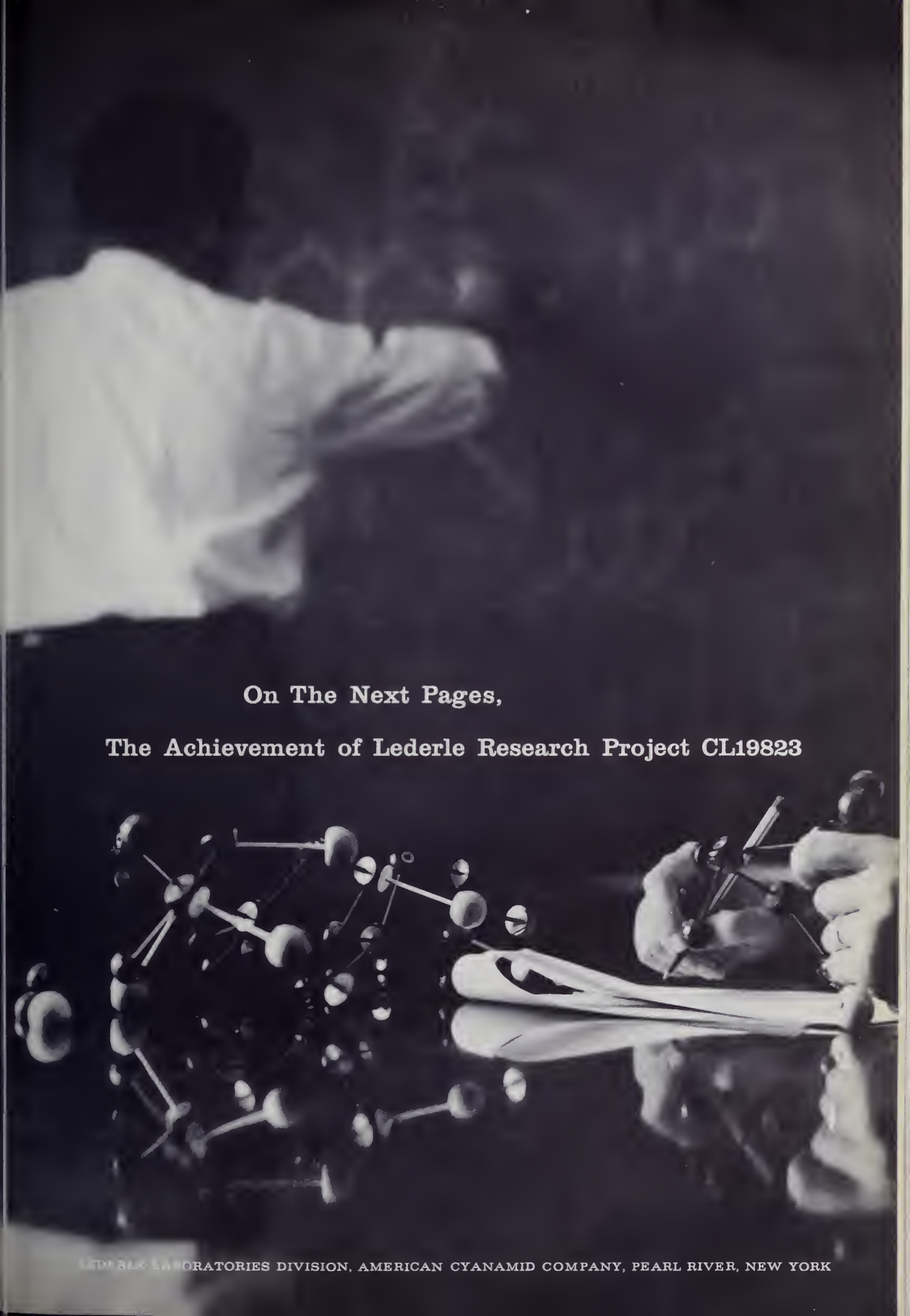
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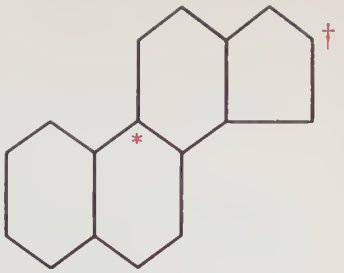
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Kidney function

Animal studies on ARISTOCORT[1] have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.[1] Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.[2] Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.[3] Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.[4,5] In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.[6,7]

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.[1] Potassium balance studies in humans[2,3] revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.[6,7]

Calcium and phosphorus

Phosphate excretion in animals[1] was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies[3] demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.[3] At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.[2,3]

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.[8]



Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.[1]

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet[1] and cottonball[9] tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.[10] Clinical studies[11] of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.[12] The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

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The Promise of Aristocort in Reduction of Side Effects

It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are reported below.

Peptic Ulcer

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case[1]). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,[2] and toxic syndromes producing even convulsions and death.[3]

Since the onset of these complications is not directly related to duration of steroid administration,[4] the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.[5] Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.[1,6]

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.[7,8] Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.[1] These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, lightheadedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,[9] 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),[5] and in inflammatory and allergic skin diseases (33-50 per cent).[10,11]

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in lower incidence of major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort in Rheumatoid Arthritis

ARISTOCORT *therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.*

Significant is the fact that most patients were *severe* arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates[1] treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of* ARISTOCORT *sufficient to control arthritic symptoms.*

Hartung[2] treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

Bibliography

1. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957. 2. Hartung, E. F.: Paper presented at Florida Academy of General Practice, St. Petersburg, Florida, Nov. 2, 1957.

Lederle

The Promise of Aristocort in Respiratory Allergies

About 200 patients with respiratory allergies have been treated with ARISTOCORT *for continuous periods up to eight months.*

Results of treatment

Sherwood and Cooke[1,2] gave ARISTOCORT to 42 patients with bronchial asthma and allergic rhinitis. Average dose needed to control the asthmatic group was approximately 6 mg. per day (range, 2 to 14 mg.). Results, which were called "good to excellent" in all but four, were achieved on one-third less than similarly effective doses of prednisone or prednisolone.

The investigators noted other major improvements in ARISTOCORT therapy over the older steroids. There was no increase in blood pressure in any patient: *on the contrary, in 12 patients, there was reduction of pressure when they were transferred to* ARISTOCORT. One patient had required auxiliary antihypertensive drug therapy; over a nine-week period on ARISTOCORT, the pressure gradually fell from 206/100 to 136/79. In another case, the pressure slowly dropped from 205/105 to 154/86.

The number of cases in which these investigators tried ARISTOCORT in allergic rhinitis was not large enough to provide significant averages. However, the range of effective therapy was from 2 to 6 mg. per day. These strikingly low daily doses resulted in control of all signs and symptoms.

Schwartz[3] treated 30 patients with chronic, intractable bronchial asthma. At an average daily dose of 7 mg., he reported "good to excellent" results in all but one. Spies,[4] Barach[5] and Segal,[6] reported similar results at average daily maintenance doses of 4 to 10 mg. of ARISTOCORT.

Dosage and course of therapy

The initial dosage range recommended is 8 to 14 mg. of ARISTOCORT daily. Although a rare, very severe case may require more than this on the first day of therapy, these dosages will usually result in prompt alleviation of dyspnea, wheezing and cyanosis. Patients are soon able to carry out a normal span of daily activity.

The maintenance level is arrived at by reduction of the total daily dose every three days in decrements of 2 mg.; in the over-all series, the average daily dose for bronchial asthma is approximately 8 to 10 mg. and for allergic rhinitis, 2 to 6 mg. per day. All total daily doses should be divided into four parts and given with meals and at bedtime. As in every condition where corticosteroids are employed, each patient's treatment should be individualized and the maintenance arrived at by careful titration against signs and symptoms of disease.

Patients with chronic bronchial asthma may require steroid therapy for several months. And since asthma may be associated with cardiac disease, especially in the older age groups, ARISTOCORT is particularly useful because of its ability to cause excretion of sodium and water.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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1. Sherwood, H., and Cooke, R. A.: J. Allergy 28:97, 1957. 2. Sherwood, H., and Cooke, R. A.: Personal Communication. 3. Schwartz, E.: Personal Communication. 4. Spies, T. D.: Personal Communication. 5. Barach, A. L.: Personal Communication. 6. Segal, M. S.: Personal Communication.

Lederle

The Promise of Aristocort

in Nephrotic Syndrome

Fourteen patients with the nephrotic syndrome have been treated with ARISTOCORT *for continuous periods of up to six weeks.*

Results of treatment

Hellman and associates[1,2] noted that ARISTOCORT, because of its favorable electrolyte effects, may well be the most desirable steroid to date in treatment of the nephrotic syndrome. However, thus far its use has been reported in only 14 children, of whom 8 had a complete diuresis and disappearance of all abnormal chemical findings. Four of the patients had diuresis, but continued to show some abnormal chemical findings, while two patients with signs of chronic renal disease failed to respond.

Dosage and course of therapy

In order to produce maximal response, 20 mg. should be given daily until diuresis occurs. The dose should then be decreased gradually and maintained around 10 mg. a day. After the patient has been in remission for some time, it may be advisable to diminish the dose gradually and discontinue ARISTOCORT.

in Pulmonary Emphysema and Fibrosis

Eleven patients with pulmonary emphysema and/or fibrosis were treated with ARISTOCORT *for continuous periods of over two months.*

Results of treatment

Only small series of cases observed by Barach,[3] Segal,[4] and Cooke,[5] are available. Barach treated patients who were not adequately controlled by prednisone, with the same dose of ARISTOCORT with significant improvement.

Dosage and course of therapy

The initial suppressive dose range recommended is 10-14 mg. daily. Frequently, there is a prompt decrease in cyanosis and dyspnea, with increase in vital capacity.

The average maintenance dose level was 8 mg. a day. If it is desired to maintain a patient on continuous therapy for some months, dosages as low as 2 mg. a day have been successful. All decreases in dosage should be gradual and at a rate of 2 mg. decrements in total daily amount, every two to four days. The daily dosage is divided into four parts and given with meals and at bedtime.



in Neoplastic Diseases

◊ *Forty-four children and adults have been given* ARISTOCORT *for palliative treatment of acute leukemia, chronic lymphatic leukemia, lymphosarcoma, lympholeukosarcoma and Hodgkin's disease.*

Results of treatment

Farber[6] has treated 22 children with acute leukemia for an average of three weeks. Of the 17 observed long enough to judge the efficacy of the medication, he rated five as excellent, three as good, two as fair and seven as poor responses.

Hellman and associates[7] gave ARISTOCORT to a group of patients with the various lymphomas in doses of 40 to 50 mg. a day—occasionally up to 100 milligrams. Treatment was continued in some cases for 17 weeks. Response was classified as good for the palliative purposes for which the drug was given.

Dosage and course of therapy

Massive initial suppressive doses of 40 to 50 mg. per day in children (1 mg./kg./day) and up to 100 mg. a day in adults have been administered.

Responses to any specific dosage in these conditions vary so widely that only a general dosage range can be indicated. Treatment must be individualized; rate of reduction in dosage and determination of maintenance levels cannot be categorized.

Miscellaneous

Patients with various other diseases have been treated by several clinical investigators. These include patients with osteoarthritis, acute bursitis, rheumatic fever, spondylitis, other "collagen-vascular" diseases (dermatomyositis, etc.), thrombocytopenic purpura, chronic eosinophilia, hemolytic anemia, diuretic-resistant congestive heart failures, and adrenogenital syndrome.

There have not been sufficient patients in any of the above categories to permit definitive treatment schedules to be finally established for ARISTOCORT. Additional studies are now in progress and physicians desiring information on any of these diseases are requested to write to Lederle Laboratories, Pearl River, New York for available data.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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The Promise of Aristocort

in Inflammatory and Allergic Skin Diseases

◊ *Over 200 patients with allergic and inflammatory skin diseases (including psoriasis, atopic dermatitis, exfoliative dermatitis, pemphigus, dermatitis herpetiformis, eczematoid dermatitis, contact dermatitis and angioneurotic edema) have been treated continuously with* ARISTOCORT *for periods of up to eight months.*

Results of treatment

Rein and associates[1] treated 26 patients with severe dermatitis. Twenty-four had been on prednisone when changed to ARISTOCORT. While some had found satisfactory symptomatic relief, others had also developed side effects—moon face, buffalo hump, increased appetite with excessive weight increases and gastro-intestinal disturbances.

These investigators determined the equivalent dosage of ARISTOCORT to be approximately two-thirds that required to control symptoms on the previous corticosteroid. Thirteen of the 26, who had developed moon face, noted either an actual decrease or no further increase when transferred to ARISTOCORT. In addition: *Voracious appetites disappeared, with loss of weight in 11 patients; there was no elevation in blood pressure, and no necessity to restrict sodium or administer supplemental potassium.* Sherwood and Cooke,[2] and Shelley and Pillsbury[3] obtained similar results in allied disorders.

Hollander[4] first observed that ARISTOCORT appears to have striking affinity for the skin and great activity in controlling such diseases as psoriasis, for which other corticosteroids have been indifferently effective. Shelley and Pillsbury,[3] in 50 cases of acute extending psoriasis found that over 60 per cent were markedly improved.

Dosage and course of therapy

The recommended initial suppressive dose range is 14 to 20 mg. per day. In very severe cases, temporary dosages up to 32 mg. a day have been successfully employed. Once lesions are suppressed, gradually reduce dose to the maintenance level—which may be as low as 2 mg. per day.

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in Disseminated Lupus Erythematosus

◊ *Forty patients with disseminated lupus erythematosus were treated with* ARISTOCORT *for continuous periods of up to nine months.*

Results of treatment

Patients have responded very promisingly to therapy. Dubois[1] has had the largest single experience (28 cases) with ARISTOCORT in the treatment of this disease. He reported 25 of the 28 responded favorably.

Freyberg,[2] Hartung,[3] Hollander,[4] Spies,[5] and Segal,[6] each in smaller series of cases, reported similarly good therapeutic responses.

Dosage and course of therapy

The initial suppressive dose recommended is 20-30 mg. daily. Once the desired effect is achieved, the dose should be reduced gradually to maintenance levels (3 to 18 mg. per day).

In severely ill patients large doses may be required for several days in order to preserve life. Even on these large doses, edema and sodium retention have not occurred.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

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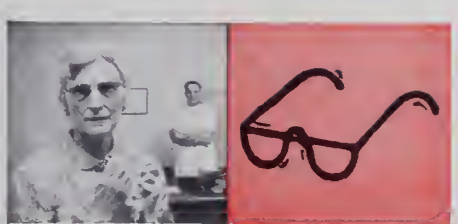
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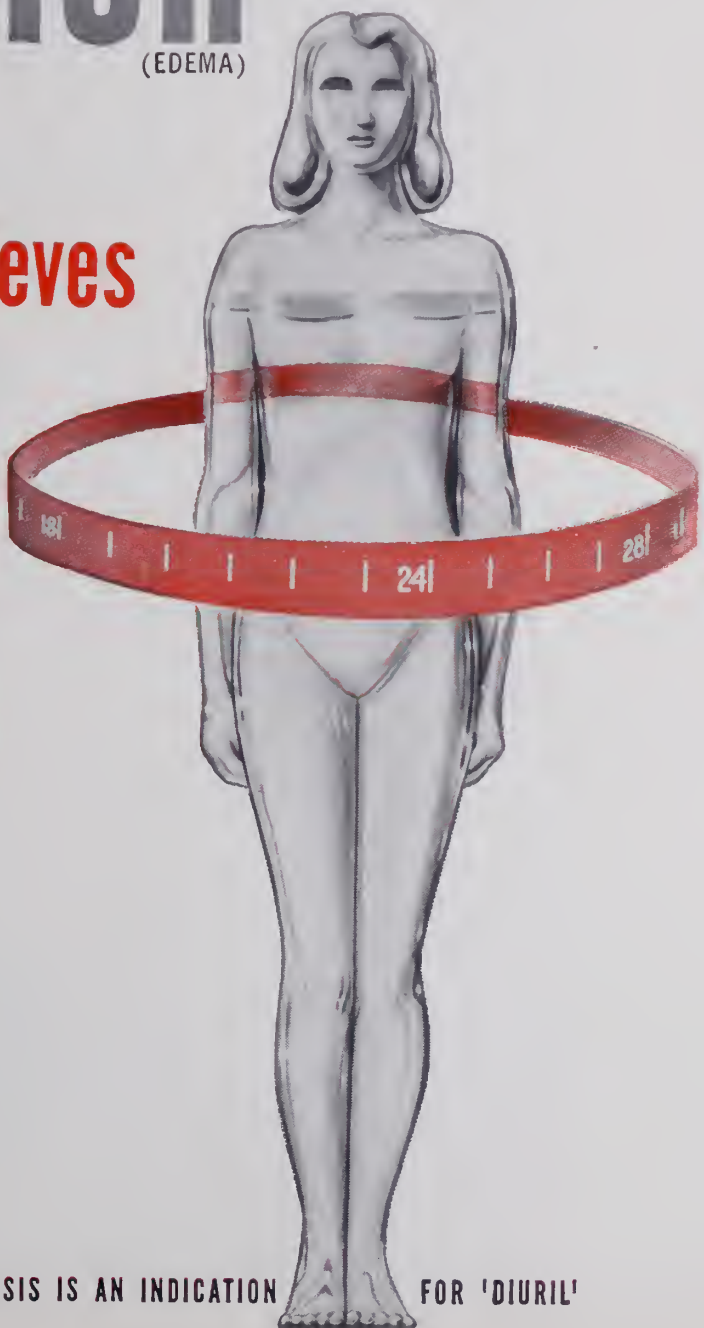
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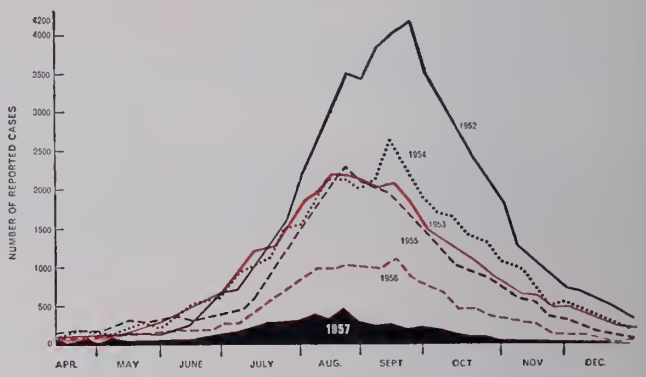
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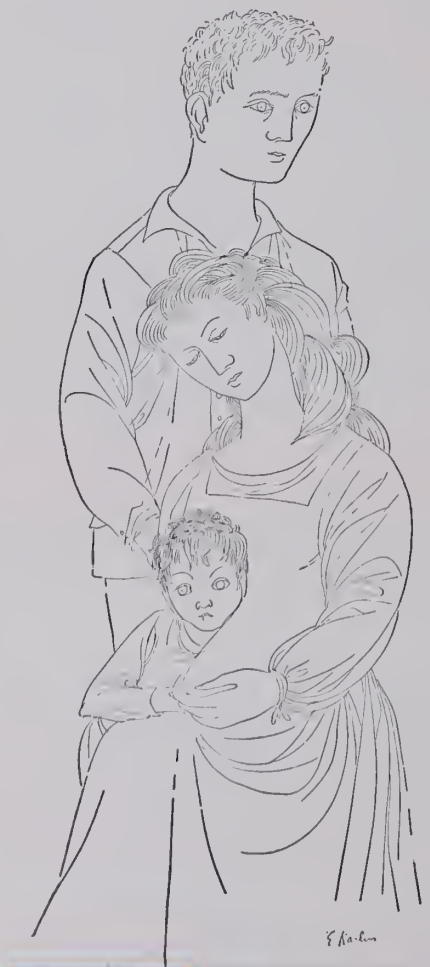
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1. J. A. M. A., 165:21 (*November 23*), *1957.*

2. Department of Health, Education, and Welfare: News Release, October 10, 1957.

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CANCER OF THE COLON, RECTUM, AND ANAL CANAL

RICHARD L. BUCK, M. D.

New Orleans

Because of increased longevity, cancer of the colon, rectum, and anal canal is now much more frequent than formerly. For this reason, it is evident that a statistical paper will be of some value to physicians encountering this condition. Therefore, all malignant cases of the colon, rectum, and anal canal seen in private practice during a period of four and one-half years were reviewed. Some of these cases were seen in consultation in the hospital either before or after the diagnosis was established. The majority were seen and diagnosed in the office. This is a small series, but each case has a complete follow-up, some of which are of short duration.

SYMPTOMS

Forty-seven cases of cancer of the colon, rectum, and anal canal were seen between July, 1953 and December, 1957. Of these, there were 26 males and 21 females. The ages varied from eighteen to eighty-six years, the average being sixty years. In the histories, the symptomatology varied in length from eighteen months to one week with an average of six months' time. Table 1 shows the symptoms and frequency in the 47 patients.

TABLE 1
SYMPTOMS

Symptom	Number	Per Cent
Blood	39	81
Change in bowel habits	33	70
Pain	42	90
Weight loss	11	23
Bladder symptoms	5	11
Mucus	11	23

DIAGNOSIS

The diagnosis in most cases was not a difficult one to make with a careful history and proctosigmoidoscopic examination. A barium enema, alone, cannot be relied upon to replace the history and proctoscopic examination. It will be noted that the diagnosis was made by proctoscopic examination and biopsy in 36 of the 47 cases. In 5 of these, previous barium enemas had failed to show the lesion; in 2 of these, two barium enemas had been done. In 1 case in which a barium enema had been performed, the tumor was found while a hemorrhoidectomy was in progress. In one of the 36 cases diagnosed by proctoscopic examination and biopsy, the barium enema was negative. A hemorrhoidectomy was done; the tumor was suspected only when the patient continued to bleed. Table 2 shows the mode of diagnosis.

TABLE 2
DIAGNOSIS

Mode of diagnosis	Number	Per Cent
Operation and biopsy	6	13
X-ray	5	11
Proctoscopic examination and biopsy	36	77

TYPE, GRADE, AND LOCATION

By far the largest number of patients in this series had adenocarcinoma involving the rectum. However, 1 patient had both squamous cancer of the anal canal and adenocarcinoma of the rectum. Another had adenocarcinoma of the rectum

and bronchogenic carcinoma of the lung. The largest number had Grade III adenocarcinoma. Table 3 shows the type and grade of cancer and Table 4 shows the location of the tumor.

TABLE 3
TYPE AND GRADE

Type	Grade	Number	Per Cent
Adenocarcinoma	I	0	0
Adenocarcinoma	II	8	17
Adenocarcinoma	III	25	53
Adenocarcinoma	IV	5	11
Ungraded		5	11
Squamous		3	6
Squamous and adenocarcinoma		1	2

TABLE 4
LOCATION

Location	Number	Per Cent
Anal canal	3	6
Anal canal and rectum	1	2
Rectum	23	49
Rectosigmoid	8	17
Sigmoid	8	17
Splenic flexure	2	4
Ascending colon	2	4

TYPE OF TUMOR AND OUTCOME

It was found that the type of tumor according to Broder's classification of the malignancy was quite important from a prognostic standpoint. In this series, there were no Grade I malignancies. There were 8 patients with Grade II malignancies, 2 of whom have died and 6 have been living an average of thirty-four months following surgery. There were 25 patients with Grade III tumors of which 13 have been living an average of twenty months. There were 5 patients with Grade IV tumors, 2 of whom have been living an average of twenty-four months. There were 4 cases in this series which were ungraded. Of these, only one is living. However, in 2 of the ungraded cases, metastatic lesions were removed for diagnosis. There were 3 patients with squamous carcinoma of the anal canal, 2 of whom have died at an average of nine months following surgery. The other is living and well at fifty-four months; however, this was an extremely early lesion. The patient had a hemorrhoidectomy; the lesion was removed and found to be Grade III squamous carcinoma. The diagnosis was unexpected and was made by the pathology department. This patient refused any further treatment and has continued to be well. The one patient with both adenocarcinoma of the rectum and squamous cell cancer of the anal canal lived only twelve months. Table 5 shows the type of tumor and the outcome.

TABLE 5
TYPE OF TUMOR AND THE OUTCOME

Type	Living	Average length of life months	Dead	Average length of life months
Adenocarcinoma Grade I	0	0	0	0
Adenocarcinoma Grade II	6	34½	2	12½
Adenocarcinoma Grade III	13	20	12	9
Adenocarcinoma Grade IV	2	24	3	9
Ungraded	1	24	3	13
Squamous cell	1	54	2	15
Squamous cell and adenocarcinoma Grade III	0	0	1	12

Of the 47 cases, 43 were operated upon. Thirty-nine of these operated cases were adenocarcinoma of the rectum and colon and could be classified according to Duke's method, which is based on the extension or metastasis of the tumor. As can be seen, this offers a much better way of prognostication than does Broder's classification. There were 4 with Duke's I, all now living an average of thirty-eight months. There were 12 with Duke's II, of whom 10 have been living an average of twenty-two months and only 2 have died. There were 14 with Duke's III.a, 9 of whom have been living an average of twenty months; 5 have died. There were 9 with Duke's III.b, all of whom have died. Table 6 shows the classification and the outcome.

TABLE 6
DUKE'S CLASSIFICATION AND OUTCOME

Type	Living	Length of time months	Dead	Length of time months
I.	4	38	0	0
II.	10	22	2	17
III.a	9	20	5	10
III.b	0	0	9	9

TYPE OF SURGERY AND OUTCOME

In this series, there were 4 patients who had ungraded lesions. All 4 of these are dead. They were not operated upon because of their age and/or other severe pathological conditions which precluded the possibility of surgery. It is felt that age, of itself, is not a deterrent, and only if there are severe medical contraindications should these patients not be operated upon.

As will be noted, there were no abdominoperineal proctosigmoidectomies. This "pull through" operation has the advantage of not resulting in an abdominal colostomy; however, the complete excision of the anus, rectum, and surrounding structures is thought, by most surgeons, to give a better chance of permanent cure. There were 27 combined abdominoperineal resections. Of these, 15 are still living; the average length of life has been twenty-eight months. Twelve have died; their average length of life was fifteen months. Of these 27, 3 were done with the idea of palliative surgery, since there was at least one small metastatic lesion of the liver in each case. It was felt that these patients would live longer and more comfortably than if a simple colostomy were done. One patient on whom an abdominoperineal resection was done died two and one-half months later of mesenteric thrombosis. Another was involved in an automobile accident, in which she was severely injured, two years after the abdominoperineal resection. Exploratory laparotomy at that time showed no recurrence. However, this patient died several months later of congestive heart failure. There were 7 cases in which only proximal colostomy was performed as the initial procedure. In 3 of these cases an acute intestinal obstruction was present. In 3 others there was an impending obstruction of the left colon. Another case had a fistula from the colon to the bladder. In only 1 of these 7 cases could curative surgery be attempted; the other 6 had widespread metastasis. Of these, 1 has been living twenty-four months. One of the sigmoid resections had a three-stage operation, a transverse colostomy being done as the initial procedure. It is felt that four to five weeks should elapse between the colostomy and the sigmoid resection. In one of the splenic flexure lesions, in which there was an obstruction, a cecostomy was done about two weeks before the left colectomy and anastomosis, and the patient is still living and well at twenty-four months. The other, who died at two months, had a coronary occlusion. The hemorrhoidectomy was done in the case of the anal cancer which was undiagnosed before surgery. Table 7 shows the type of surgery and the outcome.

TABLE 7
TYPE OF OPERATION AND THE OUTCOME

Type of operation	Living	Average length of life months	Dead	Average length of life months
Right colectomy	1	14	1	11
Left colectomy	3	13	1	2
Abdominoperineal resection	15	28	12	15
Sigmoid resection	2	16	1	10
Colostomy	1	24	5	7
Hemorrhoidectomy	1	54	0	0
Not operated	0	0	4	6

REMARKS

As can be seen from the duration of symptoms as obtained by history, some of which were as long as eighteen months and with an average in all cases of six months, these lesions are not being found early. This is a fact also borne out in Duke's classification; 18 of the cases were Grade III. However, the extent of the lesion is frequently not in direct proportion to length of history. Barium enemas are too frequently being relied upon to replace a good history and proctosigmoidoscopic examination. Since 70 per cent of all cancer of the anus, rectum, and colon is within reach of the proctoscope, this is the simplest and easiest method of diagnosis. Whereas Broder's classification is important, the prognosis following adequate surgery can best be determined by Duke's classification of the extent of the tumor. The anal carcinomas have done poorly postoperatively; 3 of the 4 died within

an average of fifteen months. The fourth case was seen in consultation following a hemorrhoidectomy and this patient refused any further surgery. The mucoid type of adenocarcinoma has, also, done poorly. In this series there were 3 cases of mucinous cancer, 2 of which died at seven and ten months, respectively, and the third case is still living fourteen months following surgery. The site of the tumor, if above the anal canal, seemed to have little effect on the longevity following surgery. Careful preoperative preparation and accurate postoperative fluid and electrolyte control result in low operative mortality. In this series, only 1 died in the postoperative period. This patient had an acute intestinal obstruction and transverse colostomy was performed. The patient died of congestive heart failure.

CONCLUSIONS

1. Adenocarcinoma of the colon, rectum, and anal canal is more frequent now than formerly, due to the increased longevity of the general population.
2. These cases are still not being seen early, the average duration of symptoms being six months.
3. The prognosis for apparent cure depends on early diagnosis followed by early surgery.
4. The diagnosis can be made easily in most cases by history and proctoscopic examination and biopsy.
5. Squamous cell carcinoma of the anal canal and the mucinous type of adenocarcinoma of the rectum and colon offer a particularly poor prognosis.
6. The site of the tumor, if above the anal canal, has little effect on the outcome when adequate surgery is done.
7. Duke's classification is more accurate than Broder's in prognosticating the outcome.
8. The operative mortality in colon surgery is low.

REFERENCE

Duke, Cuthbert E.: Classification of cancer of the rectum, J. Path. & Bact. 35:323, 1932.

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DIVERTICULITIS OF THE COLON FROM THE POINT OF VIEW OF THE GENERAL PRACTITIONER *

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Diverticulitis of the colon is worthy of discussion for two reasons. It has been known for many years to carry a train of very significant complications so that the disease is one that is important to treat correctly. If this is not done the patient may be incapacitated for long periods of time, or succumb to the disease. It also is important to note that at the present time the disease is increasing in frequency due chiefly to the fact that our population is living a great deal longer than it did a few decades ago.

Manifestations of diverticulitis of the colon are limited to the sigmoid in 90 per cent of the cases. Although diverticula occur in other portions of the colon, and occasionally become inflamed, surgery is not often required for relief.

The disease is essentially unknown below the age of 35. From that time onward there is a steady and progressive rise in incidence both of diverticulosis and its accompanying disease, diverticulitis. Diverticulosis itself is presumed to be asymptomatic, and when symptoms occur some degree of diverticulitis is believed to be present.

THREE CLINICAL GROUPS

As the practitioner sees patients with diverticulitis, they may be divided into certain specific groups. In the first place, an abrupt onset of one of the complications of diverticulitis forces hospitalization during the first episode of the disease.

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Considering all the patients who enter the hospital with diverticulitis, the physician must recognize that approximately 1 out of 4 will require operation at some time. Furthermore, these symptoms not infrequently are very serious at onset and operation then becomes an emergency. For example, out of 218 resections that have been required for diverticulitis in our hospital in the last 15 years, 63, or 29 per cent of those operated on required an operation at the first attack of the disease.

A second group of patients have an operation performed after a period in which symptoms have been either persistent or recurrent. Numerically this group is much more common than the first group. A third, and final group require operation because the lesion clinically behaves like cancer and malignant disease cannot be excluded by any other means than resection and examination of the specimen. These types will be discussed in order.

PATIENTS WITH ACUTE SYMPTOMS

First, let us consider the patients who enter the hospital with acute symptoms from the disease. They usually fall into one of several categories. The great majority will have left lower quadrant pain, tenderness, some temperature and some disturbance of bowel function such as constipation or diarrhea. Conservative therapy with a restricted diet and parenteral antibiotics and sulfathalidine by mouth usually will lead to improvement. As soon as some degree of recovery is manifest, the diagnosis then can be made safely by the barium enema. It is important, however, to remember that the barium enema is potentially a very hazardous examination. The preparation of the bowel usually must be far less than perfect because one will not dare to give catharsis for fear of producing a perforation. By the same token, large enemas for preparation are not wise. The barium enema, therefore, often must be carried out with an unprepared bowel. However, this will frequently give enough information to make a tentative diagnosis which then can be confirmed at a later date when the patient can be more completely prepared.

Surgery during the first attack may be required for several reasons. In the first place the symptoms of diverticulosis may not abate but progress to perforation with palpable mass or local or general peritonitis. There is little question but that patients with peritonitis should be operated upon; there is more of a question about how inflammatory masses in the left lower quadrant should be handled. The point of view that we have taken is that unless an inflammatory mass subsides promptly within the course of two or three days, that it is best to treat it by transverse colostomy. Patients with ruptured diverticula, in addition to the colostomy, require closure of the perforation. At a later date, of course, the colon has to be resected.

Obstruction is another reason for surgery during the first attack. This may be complete, with a very marked distention of the abdomen but usually it is subacute without a great deal of proximal distention of the large bowel. X-rays will show a very tiny lumen or complete obstruction to the retrograde flow of barium.

A few patients first manifest the disease by hemorrhage. Hemorrhage must be ascribed to diverticulitis only after a careful survey because large bowel bleeding much more commonly arises from cancer or polyp than it does from diverticulitis. However, bleeding from diverticulitis is relatively common, and, as a matter of fact, nearly one-quarter of all cases with this disease will bleed at some time. In a few instances the bleeding is massive and cannot be controlled by any measure short of operation.

When operation for massive hemorrhage is required, the surgeon is often in a very difficult predicament because he must operate upon a bowel that is full of old infected blood that is hard to handle technically and dangerous to resect. For this reason it seems wisest, when a patient enters with hemorrhage, presumably from diverticulitis, to start antibiotics by mouth,

such as neomycin, on a dosage of 2 grams, 4 times daily, and replace the blood loss with transfusion. Then, if the bleeding persists, the surgeon can operate upon a bowel that is at least partially prepared. It is of some interest that of 8 resections that we have had to perform for acute massive hemorrhage from the large bowel due to diverticulitis, major postoperative complications occurred in 7. If a resection is carried out, and it nearly always will be necessary, the anastomotic line should be protected by a transverse colostomy.

In some patients the disease is manifested first by urinary symptoms; they usually herald the onset of a fistula from the sigmoid into the bladder. Fistulas may develop into any adjacent structures, although the vagina is the second most common site of perforation.

PATIENTS WITH RECURRENT SYMPTOMS

In the second group of patients the symptoms of acute diverticulitis subside. As they recover from the first attack, they are discharged on a low-roughage diet and some demulcent such as Metamucil. While most of them will do well, some continue to have a great deal of discomfort from daily cramps, diarrhea or constipation. These symptoms can continue to be extremely aggravating although they may not be severe enough to warrant hospitalization. However, the persistence of these symptoms is usually enough to cause the patient to seek operative relief.

More commonly, symptoms subside completely after this first attack of diverticulitis. The patients get along perfectly well for an indefinite period. Finally a second attack occurs, and if there is rapid recovery later on, others succeed. It would be quite appropriate if it would be possible to find some particular features of the life history of diverticulitis that would make it possible to select the patients who are going to develop recurrent attacks. However, this is generally impossible. There are some patients though in whom it is pretty clear that the future is going to be most difficult indeed unless the colon is resected. Some of the patients who fall into this group are those who develop diverticulitis at a relatively young age, or those who have a very severe deformity of the sigmoid on radiological examination, or those who have developed urinary symptoms indicating the fact that the sigmoid is already adherent to the bladder.

Consequently, in many instances from the behavior of the patient as he is observed under medical therapy, or from these other criteria that have been laid down, it is clear that some operative procedure should be carried out to relieve the patient before severe complications do arise. This is now possible in many, and of course the great advantage in planning to do it this way is that most of them can be treated by a one-stage resection and anastomosis of the bowel, rather than by the cumbersome three-stage operation that not only involves three operations, but requires the presence of a colostomy for a period of time.

DIVERTICULITIS OR CANCER?

In the third group of patients a lesion in the colon is demonstrated that the clinician cannot diagnose accurately, but believes that it may be either cancer or diverticulitis. Such confusion is actually very common and many times the surgeon, even at the time of operation, is insecure in his diagnosis until the specimen has been removed and the pathologist has examined it. There are a few helpful ways in which the differential diagnosis can be made short of operation.

The radiologist, of course, will have several guides that will help him. The presence of diverticula is not particularly helpful one way or another, since cancer may occur concomitantly with the diverticulosis.

A short segment with a defect that is marked by square rather than tapering ends, must always arouse suspicion, and if mucosa is not present in the defect, almost certainly proves the presence of cancer. However, in numerous instances the radiologist will not be able to make a definite diagnosis and will require a repeat examination after a short period of

therapy before he will make a positive statement. If there is not rapid improvement after a short period of therapy then exploration is desirable.

Consequently, the clinician should be wary of a diagnosis of diverticulitis unless the radiologist is very certain of his findings. A sigmoidoscopy should always be done as well to rule out any lesion distal to any narrowing shown in the sigmoid. If there is daily discharge of blood by rectum, or tenesmus, the presence of cancer rather than diverticulitis is not unlikely. Furthermore, if symptoms do not abate very rapidly after a transverse colostomy has been done, cancer is much more likely to be present than diverticulitis.

OPERATIVE PROCEDURES

When the selection of a proper operation for diverticulitis is made, it may be noted that at the present time we are carrying out one-stage resections and anastomosis in approximately one-half of the cases of diverticulitis that require operation. This is a method that must be regarded as a rather difficult technical procedure; the bowel is often rather difficult to handle, and unless meticulous care is taken, anastomotic leaks or refistulization may occur. The surgeon must be sure that he has good flexible bowel both above and below the area of resection so that the anastomosis will be a good one. We believe that better results can be obtained by relatively long resections, and, in many instances, free the splenic flexure, in order to obtain good colon for the upper end of the anastomosis. An average of about 20 cm. of bowel usually is resected. However, in nearly all instances, diverticula have been left in the proximal colon. It is very rare that they have produced later trouble.

There are many staged operations that can be used for the resection of the sigmoid. It would be undesirable here to engage in a discussion of the pros and cons of the various types. However, the one we have found to be the most satisfactory consists of three steps. In the first, a transverse colostomy is established, preferably in the right upper quadrant. However, if the area of sigmoid involved by diverticulitis is very short, a left upper quadrant transverse colostomy will be satisfactory. The second stage is carried out anywhere from three weeks to three months later. At this time the involved section of colon is resected and a meticulous 2-layer open anastomosis carried out. At the third stage, which may vary from ten to thirty days after the second, the transverse colostomy is closed. While this is a slow procedure, requiring a longer period of hospitalization and is more arduous for the patient, it still is a safer operation even in the hands of the best trained surgeons. For those surgeons who have had relatively little experience with this type of disease, it is immeasurably safer than to attempt a 1-stage resection and anastomosis.

CONCLUSION

In the past decade, due to many factors, the mortality has decreased significantly. That of resection now is approximately 3 per cent. Since the operative mortality is relatively low, it seems reasonable to conclude that surgery should be carried out relatively early in the disease and that resections and anastomoses should be planned in essentially every case of diverticulitis. Bowel continuity and normal function then can be restored in nearly every patient suffering from this disease.

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FULMINATING POST-INFLUENZAL PNEUMONIAS *

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In the late winter of 1957, a new variant of type A influenza virus made its appearance in the Orient and the typical influenzal syndrome produced by this agent began its rapid spread to pandemic proportions.[1] By June, it had reached the continental United States, appearing successively in Rhode Island, California and Louisiana.[2] In the latter state, the Asian strain of influenza A virus was first isolated in mid-July and by early August the illness had reached epidemic extent.[2]

Early reports [3-10] concerned with the clinical manifestations of this disease indicated that the illness was a classical form of mild to moderately severe influenza associated with little or no mortality. However, there has since been mounting evidence that while Asian influenza per se may be a generally benign illness, its complications are very significant. This impression is based primarily upon statistical evidence that the influenza epidemic has been associated with a rising incidence of severe bacterial pneumonias and an increased death rate from respiratory diseases.[11-18]

At the Veterans Administration Hospital, New Orleans, Louisiana, the medical staff was impressed by the large number of bacterial pneumonias which were seen during the fall of 1957, by the unusual severity of some of these cases, by the number which terminated fatally and by the frequent association of Asian influenza with these disorders.

The present report concerns itself with an analysis of these patients and the presentation of several illustrative cases.

ANALYSIS

During the five-month period from August 1, 1957, to December 31, 1957, a total of 100 patients were treated for pneumonia, exclusive of those cases in which the pneumonia was considered to be a terminal event in the course of some other fatal disease. In the comparable periods of 1954, 1955, and 1956, pneumonia cases averaged 43 (Table 1); thus the 1957 figure represents an increased incidence of more than 130 per cent.

TABLE No. 1
PNEUMONIA ADMISSIONS, DEATHS AND MORTALITY RATES, VETERANS ADMINISTRATION HOSPITAL, NEW ORLEANS, LOUISIANA (FIVE MONTHS, 8/1 - 12/31) 1954 - 1957

Year	1954	1955	1956	3-Year Average	1957
Admissions	32	49	49	43	100
Deaths	4	5	1	3.3	22
Mortality	12.2%	10.2%	2%	8%	22%

The average mortality rate from pneumonia for the three years prior to 1957 was 8 per cent, while in the latter year mortality rose sharply to 22 per cent (Table 1). There appears to be little doubt that both the increased incidence and the unusual severity of these cases was directly related to influenza, since 54 of the 100 patients gave a recent prior history of "flu" or a "flu"-like illness. In 3 patients, the Asian strain of influenza A virus was isolated and in 2 others the hemagglutination-inhibition antibody titre exhibited significant elevation. In the rest of the cases the diagnosis of previous influenza was made on clinical grounds alone.

Twenty-four patients had pneumococcal pneumonia; 12 staphylococcal pneumonia and 6 Klebsiella pneumonia. In the remainder, the specific etiological agent could not be positively identified, although *Pseudomonas aeruginosa, Aerobacter aero-*

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genes, Escherichia coli and Beta hemolytic streptococci were suspected to represent the causative organism in a few cases. A comparison of these figures with those of the preceding three years (Table 2) disclosed that the incidence of pneumococcal

TABLE No. 2
ETIOLOGICAL TYPES OF PNEUMONIA
VETERANS ADMINISTRATION HOSPITAL,
NEW ORLEANS, LOUISIANA
(FIVE MONTHS, 8/1 - 12/31) 1954 - 1957

Year	1954	1955	1956	1957
Pneumococcal	6	11	2	24
Friedländer's	0	0	3	6
Staphylococcal	0	1	0	12
Unidentified	26	37	44	58

pneumonia had not increased significantly over the 1955 figure and the incidence of Friedlander's pneumonia was similar to that observed in 1956, but there had been a sharp rise in the number of staphylococcal pneumonias over any prior year. In addition, staphylococci were identified in a mixed flora from 38 of the cases in which specific etiology could not be determined, and it is quite possible that these organisms were primarily responsible for the pneumonic process in a considerable number of patients other than the 12 listed above.

An analysis of the 22 deaths revealed that 17 of these patients had a history of prior influenza, although the Far East virus was isolated in only 2 instances. Nine patients died of staphylococcal pneumonia while only one died of pneumococcal pneumonia and one of Friedlander's pneumonia. In the remaining 11 patients, the exact type of pneumonia was not identified. Thus it is obvious that staphylococcal infections were the leading cause of death in this series, producing a mortality rate of 75 per cent (Table 3). In those instances in which sensitivity studies were carried out, these bacteria were usually highly resistant to all available antibiotics.

The fulminant nature of these pneumonias is attested by the fact that 4 patients died in less than twenty-four hours after admission. Fifteen patients died in less than five days and the average duration

TABLE No. 3
MORTALITY RATES ACCORDING TO SPECIFIC ETIOLOGY IN ONE HUNDRED PNEUMONIA CASES
VETERANS ADMINISTRATION HOSPITAL,
NEW ORLEANS, LOUISIANA
FIVE MONTHS – AUGUST 1 — DECEMBER 31, 1957

Type of Pneumonia	Number of Cases	Number of Deaths	Mortality Rate
Pneumococcal	24	1	4.2%
Friedländer's	6	1	17 %
Staphylococcal	12	9	75 %
Unidentified	58	11	19 %
Total	100	22	22 %

of life after admission, for the entire series, was 7.5 days. This experience closely parallels that of others, namely Hers, et al [15] who, in a study of 103 cases of fatal influenza in the Netherlands, found that more than half the deaths were caused by *Staphylococcus aureus*. In addition, they stated that: " . . . in the young age-groups many of the cases complicated by infection with staphylococci ran a fulminant fatal course, with rapidly supervening shock from toxemia." Giles and Shuttleworth,[16] reporting 46 influenza deaths from England, describe an overall mortality rate from pneumonia in excess of 25 per cent. The most common bacterial pathogen was *Staphylococcus aureus*, and these organisms apparently accounted for one-third of the deaths. Differing somewhat from Hers' experience, most of the deaths occurred in the 41 to 75 age group. Our own findings were very similar to this. Only 2 deaths occurred in persons below age 40, while the ages of the remaining 20 patients dying of pneumonia ranged from 42 to 71 years.

In Giles and Shuttleworth's [16] series, it was further noted that 76 per cent of their patients had chronic pre-existing diseases. Those with chronic lung disease, hypertension, and rheumatic carditis appeared to be especially vulnerable to infection and subsequent death. In another study of respiratory deaths associated with Asian influenza, Herrmann, et al [18] noted the occurrence of alcoholism and/or chronic liver disease in 11 of 13 fatalities in persons over 30 years of age.

Again our own experience was remarkably similar to that of the above authors.

All except 2 of our patients suffered from some type of chronic disease. Heart ailments, either arteriosclerotic or hypertensive, were found in 12 cases, alcoholism and/or liver disease in 10, diffuse obstructive pulmonary emphysema in 8 and tuberculosis in 3. Other disorders occurring in single cases included diabetes mellitus, multiple myeloma, myelofibrosis, nephrosclerosis, and crippling injury to the lumbar spine. Thus there appears to be little doubt that older persons, particularly those with chronic diseases of the heart, lungs, and liver are more susceptible to postinfluenzal pneumonia and are more likely to succumb to this complication.

Another finding which appears to be of possible prognostic significance is the level of the blood leukocytes. Those patients with the most severe infections tended to exhibit leukopenia and a few showed neutropenia while leukocytosis was in general an uncommon occurrence. Although leukocyte counts ranged from 2,500 to 28,000, in only 4 cases was the admission determination above 11,000 and in 2 of these patients the white blood cells fell to lower levels as the clinical course worsened and the pneumonic process progressed.

The following are example cases of fulminating pneumonias which were apparently postinfluenzal in origin.

CASE REPORTS

Case No. 1. H. A. J., Reg. No. 28,548, a 58-year old Negro male gardener, was admitted to the hospital on November 5, 1957, for the treatment of suspected bronchopneumonia. The patient had been hospitalized on two prior occasions (1953 and 1956) for the treatment of bronchopneumonia superimposed upon chronic pulmonary emphysema. He had complained of shortness of breath associated with his primary disease since 1924. He was a known alcoholic. Seven days prior to admission, he developed a mild upper respiratory infection but did not consider himself to be seriously ill until four days later when he noted the onset of moderately severe substernal pain, weakness, fever, chilly sensations and shortness of breath. These symptoms persisted and the patient finally sought admission to the hospital.

Physical examination revealed an elderly patient who did not appear to be acutely ill or in any particular distress. The temperature was 102°; pulse 100; blood pressure 110/70. The AP diameter of the chest was increased with fixation of the ribs in a horizontal position. The lungs were hyperresonant to percussion and rhonchi and expiratory wheezes were audible bilaterally. The remainder of the physical examination was essentially normal.

Laboratory data: An x-ray of the chest on admission disclosed pulmonary emphysema with no evidence of active pathology (Fig. 1). On Novem-



Figure 1.—(Case 1): X-ray of the chest at time of patient's admission to the hospital (11/5/57). This film shows no evidence of pneumonia.

ber 5, 1957, the white blood cell count was 8,250 with 81 per cent neutrophils. *Staphylococcus aureus*, *Neisseria catarrhalis* and *Alpha Streptococcus* were cultured from the sputum. A blood culture was negative. On November 7, 1957, a smear of the sputum revealed many gram-positive cocci and a culture isolated *Staphylococcus aureus* which was sensitive to erythromycin, chloramphenicol, albamycin and sulfadiazine. A repeat white blood cell count was 5,250 with 80 per cent neutrophils.

Hospital course: The patient did not appear acutely ill on admission, but due to the elevated temperature and the physical findings suggestive of an early bronchopneumonia, he was placed on penicillin in dosage of 400,000 units every eight hours. On this therapy he appeared to show clinical improvement and his course was considered to be generally satisfactory. However, he remained febrile, and moist râles were heard over both lower lung fields with greatest prominence on the left side. Two days after the institution of therapy, the patient suddenly coughed up a small quantity of bright red blood and complained of increasing dyspnea associated with pain in the left chest. His temperature rose to 104.6° and a

state of mild shock developed. A portable chest x-ray taken at this time showed the appearance of a dense infiltration involving the lower one-half of the left lung (Fig. 2). Intensive antibiotic



Figure 2.—(Case 1): X-ray of the chest taken on 11/7/57 (2 days after film in Fig. 1), showing sudden appearance of an extensive pneumonia in the left lower lobe. This film illustrates the extreme rapidity with which staphylococcal pneumonia may develop. The patient expired less than 7 hours after this x-ray was taken.

therapy was then initiated, consisting of intravenous chloramphenicol and intramuscular erythromycin. Despite these measures, the patient's condition rapidly deteriorated with deepening coma and shock. Levophed and hydrocortisone were given without benefit and the patient expired less than seven hours after the episode of hemoptysis.

Autopsy findings: Postmortem examination disclosed diffuse reddening of the trachea and bronchial mucosa with a moderate amount of reddish hemorrhagic appearing fluid being present. The entire left lower lobe was red, wet, hemorrhagic and solid in consistency, compatible with lobar pneumonia. A definite line of demarcation separated the upper and lower halves of the left upper lobe. The lower one-half again showed hemorrhagic consolidation while the upper half revealed relatively normal lung tissue. A diffuse patchy bronchopneumonia was present within the right lung. A pure culture of *Staphylococcus aureus* was grown from the pulmonary tissue. These organisms were resistant to all available antibiotics.

Comment: This case illustrates the extreme rapidity with which staphylococcic pneumonia may develop, run its fulminant course and produce death in spite of intensive antibiotic therapy. It should be noted that the patient was elderly, an alcoholic, and had chronic pulmonary disease, a combination of conditions which appears to be particularly detrimental.

Case No. 2. G. B., Reg. No. 28,007, a 54-year old Negro male longshoreman, was admitted to the hospital on September 29, 1957, with the chief complaints of fever, chills and cough. He had been in good health until seven days prior to admission when, while at work, he experienced the onset of general malaise and a hard, shaking chill. In spite of the later appearance of fever, mild left chest pain and a troublesome cough, the patient continued to work. Home remedies brought no relief in symptoms, fever persisted, his cough became more severe and productive of thick purulent sputum, which was tinged with blood. The patient was finally forced to stop working after four days of illness. He consulted his private physician and was told that he had "flu". Treatment consisted of bed rest, penicillin and some unidentified capsules. In spite of this therapy, his symptoms persisted and hemoptysis increased. On reconsulting his physician, he was advised that he had developed pneumonia and should enter the hospital.

Physical examination disclosed an acutely ill patient who appeared to be in moderate respiratory distress. The temperature was 103.6° F.; pulse 120; respiration 50 per minute; blood pressure 90/54. The posterior pharyngeal wall was markedly injected. Examination of the chest disclosed a respiratory lag on the left side. There was dullness to percussion and crepitant râles over the entire left anterior chest. Similar râles were also heard at the right lung base. The remainder of the physical examination was essentially negative.

Laboratory data: An x-ray of the chest disclosed a dense pneumonic consolidation of the major portions of the left lung (Fig. 3). A sputum smear showed numerous gram-positive cocci resembling staphylococci, and a culture of the sputum produced *Staphylococcus aureus*, *Neisseria catarrhalis* and *Alpha streptococci*. The white blood cell count on admission was 6,000 with 80 per cent neutrophils.

Hospital course: The patient was considered to be suffering from staphylococcal pneumonia complicating influenza, and he was immediately placed on intensive antibiotic therapy. Treatment consisted of chloramphenicol, erythromycin and penicillin in large doses. Nonetheless, the patient's illness progressed in severity and was characterized by a rising pulse rate—to 160—increasing respiratory difficulty and the production of dark, bloody sputum with creamy yellow streaks. Physical signs of a rapidly spreading pneumonitis were detected and a repeat chest film confirmed this impression, showing complete consolidation of the left lung and contralateral involvement of the

right mid-lung field (Fig. 4). Digitalis, albamycin, streptomycin, isoniazid and para amino salicylic acid were added to the therapy without effect. Intravenous hydrocortisone produced transient improvement but the clinical course again turned downhill. Intense bronchospasm and retained secretions caused profound respiratory distress, despite the use of oxygen, liquefying agents, bronchodilators and exsufflator. The patient became cyanotic and comatose. He expired on the fifth hospital day.

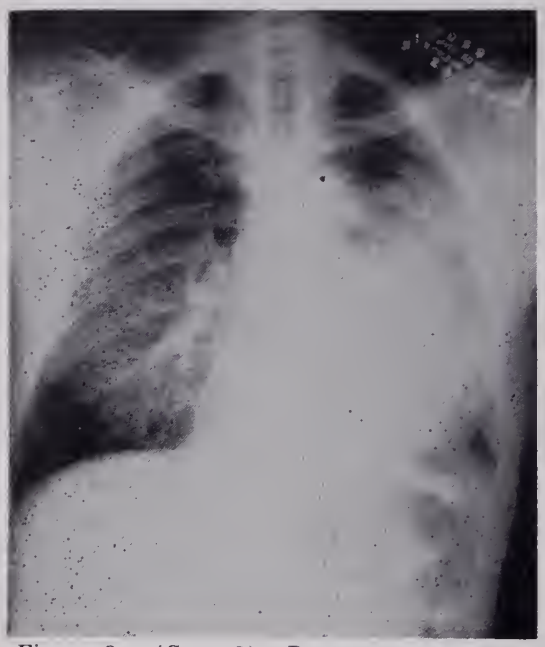


Figure 3.—(Case 2): Roentgenogram of the chest on 9/29/57 showing very extensive staphylococcal pneumonia of the left lung.



Figure 4.—(Case 2): Chest film taken on 10/1/57, 2 days after x-ray shown in Fig. 3, disclosing extension of the pneumonic process to the remainder of the left lung and mid portion of the right lung, in spite of intensive antibiotic therapy. Death soon followed.

Autopsy findings: Moderate injection of the trachea and bronchial tree was present. There was extensive diffuse pneumonic consolidation throughout both lungs. *Staphylococcus aureus* was grown in pure culture from the pulmonary tissue. These organisms were resistant to all of the employed antibiotics.

Comment: This was one of the most severe of the staphylococcal pneumonias which came under our observation. The infection was relentlessly progressive in spite of every available form of therapy and rapidly resulted in the patient's demise. The case is somewhat unique in that the patient was in vigorous good health until twelve days prior to his death, when he apparently contracted influenza. This illness is presumed to have rendered him susceptible to secondary infection by a particularly virulent strain of staphylococcus.

Case No. 3. C. M. S., Reg. No. 28,500; a 33-year old Negro male, automobile repairman, and known chronic alcoholic, was admitted to the hospital on October 30, 1957. History disclosed that two months earlier the patient was treated at another hospital for acute alcoholism and pneumonia. He was discharged after nine days, and on a follow-up examination he was told that his chest x-ray was negative. Several weeks later he began to drink again and soon noted the onset of a "flu"-like illness characterized by daily fever, general malaise and a moderate cough, productive of large amounts of yellow sputum. These symptoms abated somewhat and the patient felt fairly well until two days prior to admission when he experienced the onset of shaking chills, increased fever, weakness, severe paroxysms of coughing and the production of "rusty" sputum. His complaints increased in severity, he developed frank hemoptysis and was admitted to the hospital.

Physical examination revealed the patient to be confused, hoarse, and acutely ill. The temperature was 100° F., pulse 130, blood pressure 54/36. There was a foul odor to the breath and the posterior pharyngeal wall was markedly injected. Crepitant râles were audible over the right lung field anteriorly and coarse breath sounds with occasional wheezes were heard on the left. The liver was palpable 7 cm. below the right costal margin.

Laboratory data: An x-ray of the chest disclosed a dense, sharply demarcated mass-like shadow in the right hilar area (Fig. 5). The leukocyte



Figure 5.—(Case 3): X-ray of the chest on 10 30 57, showing a large mass-like density in the right hilar area. The differential diagnosis included bronchogenic carcinoma and lung abscess, but the lesion actually represents a densely consolidated Friedländer's pneumonia. Subsequent clinical and autopsy findings revealed rapid extension of the pneumonic process to all other lung areas. The patient died approximately 30 hours after this film was taken.

count was 4,450 with 40 per cent neutrophils. A repeat white blood cell count was 2,950; the hematocrit was 36. A smear of the sputum revealed gram-positive cocci and gram-negative bacilli, which on culture proved to be Friedländer's bacilli. These organisms were also isolated from cultures of the blood. They were sensitive to chloramphenicol and tetracycline but resistant to all other antibiotics.

Hospital course: The patient's condition was grave at the time of admission, with continuing hemoptysis, mental confusion, and shock. Therapy consisted of massive doses of aqueous penicillin intravenously and intramuscularly, chloramphenicol, oxygen, intravenous fluids, hydrocortisone and whole blood transfusions. The patient appeared to improve slightly and his blood pressure rose to 80/50. By the second hospital day, his mental confusion had cleared but he complained of chest pain and severe dyspnea and he continued to cough up large amounts of sputum resembling anchovie paste. Re-examination of the chest revealed signs of contralateral consolidation of the lower two-thirds of the left lung. Therapy was continued, the blood pressure rose to 104/60 and the patient's general clinical condition seemed to be improving when he suddenly expired, thirty-one hours after admission to the hospital.

Autopsy findings: An acute tracheobronchitis was present with copious amounts of thick, bloody, mucoid material throughout the tracheobronchial tree. The entire left lung was involved by an extensive, diffuse bronchopneumonia. Similar findings were present in the right upper lobe. The right middle lobe, which was the site of original disease, was densely consolidated. Thick, sanguinous, mucinous secretions exuded from this lobe and could be scraped from the cut surface in large quantities. The liver was enlarged and showed evidence of marked fatty infiltration.

Comment: This case represents the sole death in our series from Klebsiella pneumonia and illustrates this disease in its most fulminant form. It is interesting to note that the patient presented several conditions which pointed to a poor prognosis, he was an alcoholic with severe liver disease and he had a progressive leukopenia in the face of severe infection.

Case No. 4. M. L. P., Reg. No. 27,513; a 28-year old Negro male laborer was admitted to the hospital on August 23, 1957, in critical condition. He had been in good health until six days prior to admission when he experienced the sudden onset of fever, malaise, retrosternal pain, sweats, and diarrhea. His wife developed a similar illness at the same time and was subsequently found to have Asian influenza by virus isolation and a rising hemagglutination-inhibition antibody titre. The patient was treated with bed rest and home remedies and exhibited considerable improvement within the next twenty-four hours. However, three days before admission, he again became ill, complaining of weakness, cough, pleuritic chest pain and increasing dyspnea. His sputum became rusty in color and he exhibited signs of progressive mental confusion. When these symptoms continued to become more severe, he was finally brought to the hospital.

Physical examination: The patient was weak, semi-comatose and extremely dyspneic. The temperature was 104° F.; pulse 120; respiration 48 per minute; blood pressure 90/30. A left pleural friction rub was audible. Fine râles, tubular breathing and dullness to percussion were detected over the left lower lobe. Râles were also present over the right upper lung field.

Laboratory data: An x-ray of the chest disclosed extensive bilateral pneumonic consolidation of the left lower lung and the major portions of the right upper lung (Fig. 6). The white blood cell count was 2,500 with 39 per cent neutrophils. Pneumococci were cultured from the blood.

Hospital course: Because of the patient's obvious critical condition, intensive therapy was immediately instituted. He received oxygen, chloramphenicol, streptomycin, and intravenous and intramuscular penicillin. However, he began to

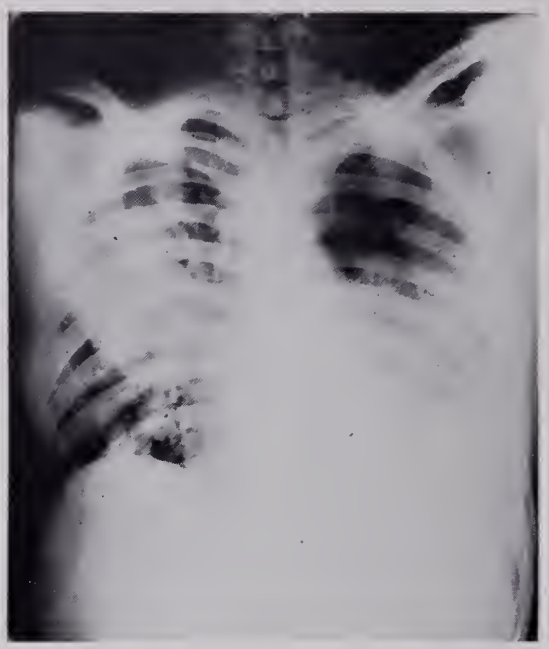


Figure 6.—(Case 4): Roentgenogram of the chest on 8/23/57, showing very extensive pneumococcal pneumonia of both lungs. The patient expired shortly after this film was taken.

vomit shortly after admission, aspirated the vomitus and expired in spite of tracheal suction, artificial respiration and intracardiac adrenalin. He had survived for only one hour and thirty-five minutes after reaching the hospital.

Autopsy findings: The tracheobronchial tree was markedly injected and contained bile-stained fluid which had apparently been aspirated. The right lung showed large areas of consolidation with only small zones of aerated pulmonary tissue peripherally. The left pleural space contained 400 cc. of purulent fluid and the left lung was completely consolidated. Numerous petechiae were present on the pericardium. The liver was slightly enlarged and congested. Cultures of the empyema fluid, the pulmonary tissue, the heart blood and the mediastinal lymph nodes were all positive for pneumococci.

Comment: This is a case of fulminating pneumococcal pneumonia which almost certainly occurred as a complication of Asian influenza. It represents the only death from this condition in our series and is one of the two fatalities in otherwise healthy individuals. It is possible that the patient might have survived had he been brought to the hospital at an earlier date. The ominous significance of a pronounced leukopenia and neutropenia in the presence of a severe infection is again pointed out.

SUMMARY AND CONCLUSION

A review of 100 cases of pneumonia seen at the Veterans Administration Hospital, New Orleans, Louisiana, during the fall of 1957, appears to confirm other reports that the recent Asian influenza pandemic was associated with a significant rise in the incidence of bacterial infections of the lung. These pneumonias were unusually severe, often fulminating in character, and produced a mortality rate of 22 per cent as compared with a mortality rate of 8 per cent during the preceding three years. Forty-one per cent of the deaths were due to staphylococcal infections and 75 per cent of the patients with staphylococcal pneumonia succumbed to this disease, a situation unparalleled in the history of this hospital.

Ninety per cent of the patients dying of pneumonia were over 40 years of age, and a similar number were found to have some type of chronic pre-existing disease. Heart ailments, pulmonary emphysema, alcoholism and liver disorders appeared to be particularly detrimental in rendering the patient vulnerable to death from pneumonia. Leukopenia was commonly encountered in the presence of these severe infections and was regarded as an ominous prognostic sign.

ACKNOWLEDGMENTS

The authors are deeply indebted to Mrs. Ruth Moore, Medical Records Librarian, Veterans Administration Hospital, New Orleans, Louisiana, for her invaluable assistance in compiling the statistical information used in this report. We also wish to express our appreciation to Mr. William Bohon, Chief, Medical Illustration Laboratory of the New Orleans Veterans Administration Hospital, for preparing the illustrations used herein. Virology studies were carried out in the Laboratory of Dr. William J. Mogabgab of The Tulane University School of Medicine, New Orleans, Louisiana.

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PULMONARY MYCOSES *

DAN E. RUSSELL, M. D. †

Shreveport

Mycotic infections of the lungs have ceased to be a medical rarity and are now known to occur much more frequently than previously suspected. Apparent increase in incidence has been due to improved diagnostic techniques (skin tests, cultures, special stains), to the growth of chest surgery (more material available for histopathologic study), and to increased interest coincident to the development of effective therapeutic agents. Actual increase may be due to the long term use of broad spectrum antibiotics which may lead to overgrowth of already present fungi, previously held in check by bacteria;[1] a further factor may be the prolonged use of ACTH or corticosteroids which may favor tissue invasion by fungi which are ordinarily saprophytic, or dissemination of localized fungus infections.

A working classification of pathogenic fungi which affect the lung is given in Table 1.[2] Infections with these organisms are rather rare and we will not discuss each of them.

TABLE 1
PATHOGENIC FUNGI AFFECTING THE LUNG

A.	Bacteria-like:
	1. Actinomyces bovis
	2. Nocardia asteroides
B.	Yeastlike:
	1. Cryptococcus neoformans
	2. Candida albicans
	3. Geotrichum candidum
C.	Yeast-Mold:
	1. Blastomyces dermatitidis
	2. Blastomyces brasiliensis
	3. Histoplasma capsulatum
	4. Sporotrichum schenckii
D.	Molds:
	1. Coccidioides immitis
	2. Aspergillus fumigatus

From Banyai, Andrew L., (Editor) "Nontuberculous Diseases of the Chest." 1954. Courtesy of Charles C Thomas, Publisher, Springfield, Illinois.

DIAGNOSIS

What steps are taken to make a diagnosis of one of the mycotic infections of the lung? First it must be remembered that many of the pulmonary mycoses are systemic as well. Material may be obtained from discharging sinuses, aspiration of subcutaneous and open abscesses, scraping from ulcerative skin lesions, sputum, bronchial washings, blood, bone marrow, spinal fluid, or biopsy of lymph node or other tissue.[2] Regardless, the diagnosis cannot be made until the causative fungus is isolated.

In some cases the organism may be suspected if fungi are found in a fresh specimen by making a mount using lactophenol or potassium hydroxide.

* Presented at a Postgraduate Course on Pulmonary Diseases, October 10, 1957.

† From the Department of Medicine, Confederate Memorial Medical Center, and the Department of Postgraduate Medicine, Louisiana State University School of Medicine.

Usually it is necessary to culture the fungi and this procedure requires a variety of media. The routine used in the Confederate Memorial Medical Center is shown in Table 2. This is a rather com-

TABLE 2.
ROUTINE OF CULTURING FUNGI
SAMPLE (SPUTUM, PUS, FLUID, TISSUE)

Blood Agar Base (BAB)	BAB	Sabouraud's	Sabouraud's	Thioglycollate
Actidione +	—	+	—	—
Pen-Strep. +	+	+	+	—

INCUBATE

Room Temp. (27-30°C)	35-37°C
BAB —	BAB +
Sab. —	Sab. +
	Thioglycollate
Mold phase	Tissue phase

Resist Antibiotics	Sensitive Actidione	Sensitive Pen-Strep.
Histoplasmosis	Cryptococcus	Actinomyces
Blastomycosis	Actinomyces	TBC
Coccidioides		
Sporotrichosis		

plex procedure but unless done properly the culture will be of limited value. At least three different series of cultures should be done if possible. Since many of the pathogenic fungi grow slowly, the laboratory should not discard the culture before four weeks. Improvement in staining methods has greatly improved the incidence of positive diagnosis in recent years.

It may be necessary to do animal inoculation in some cases when cultures fail. Mice seem to be the most susceptible animals.

Skin tests are helpful in coccidioidomycosis, histoplasmosis and blastomycosis. The tests should be done simultaneously, with a control, since they may exhibit cross reactions.[3] However, any active mycotic infection the patient has will give the strongest positive reaction. A positive test merely means the patient has had the disease at one time and now has some immunity. The test has definite diagnostic value when it changes from a negative to a positive reaction during the course of the infection. It is interpreted the same as the tuberculin skin test.

Coccidioidomycosis, histoplasmosis, and blastomycosis may also be diagnosed by a positive complement fixation test during an active infection as they produce an immune type of antibody.[3]

A history of exposure in an epidemic area may be helpful in diagnosing coccidioidomycosis and histoplasmosis. In Figures 1 and 2 are shown the endemic areas for each of these conditions.[4]

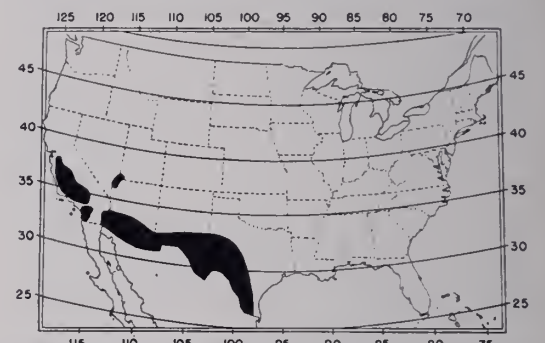


FIG. 49. Coccidioidomycosis. Geographic distribution of areas of endemicity in the United States (After Smith, California Med., vol. 75.)

Figure 1.

Reprinted with permission from Dr. Charles E. Smith and California Medicine.

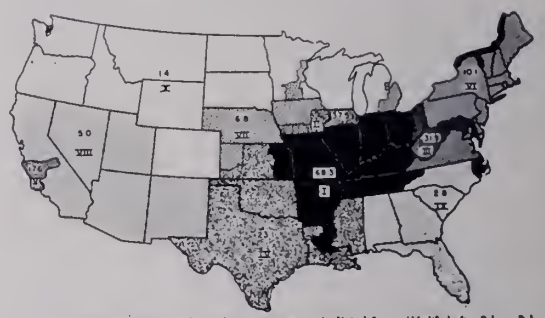


FIG. 81. Geographic distribution of histoplasmin sensitivity in the United States. (Modified after Palmer, Pub. Health Rep., vol. 61.)

Figure 2.

After Palmer in Conant et al. Manual of Clinical Mycology, 2nd Ed., 1954, Philadelphia and London, W. B. Saunders Company.

SYMPTOMS

In general the symptoms produced by all of these pulmonary mycotic infections are similar, consisting of cough, loss of weight, night sweats, fever, dyspnea, purulent sputum and hemoptysis.[1] These are certainly not diagnostic of a fungus infection. The physical findings in the chest are likewise nonspecific or absent. Generally the mycoses invade chiefly the hilar, middle, and lower pulmonary fields, but apical involvement certainly does not rule them out. Thus it is seen that the final



Figure 3.—Histoplasmosis. W. M. age 72. Positive culture from sputum.



Figure 5.—Blastomycosis. W. M. age 31. Diagnosis by surgical resection.

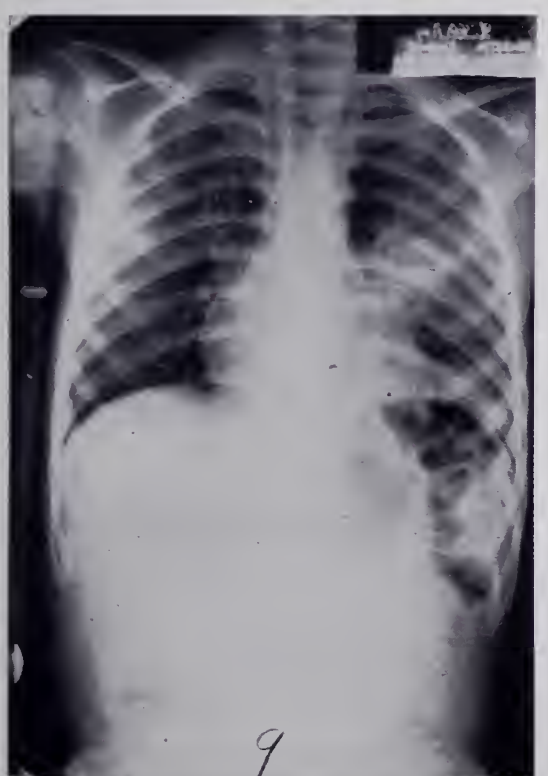


Figure 4.—Histoplasmosis. C. M. age 5. Diagnosis clinically with help of strongly positive skin test but without any other proof.

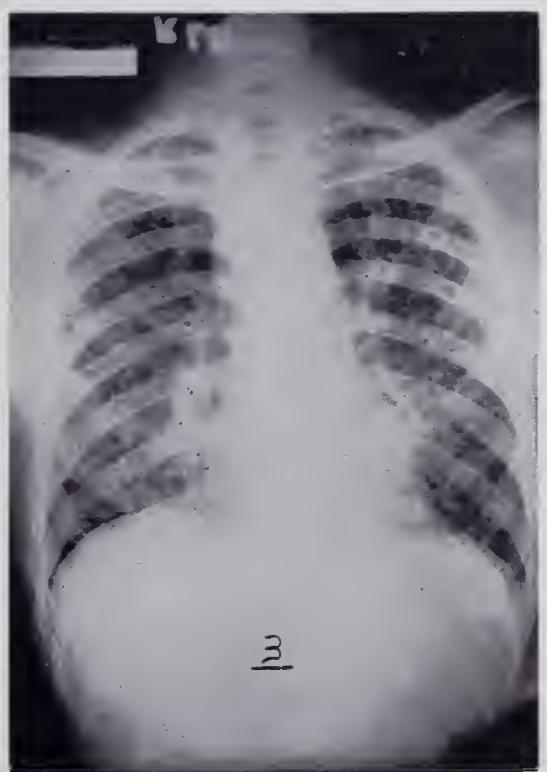


Figure 6.—Blastomycosis. Diagnosis by lung biopsy.



Figure 7.—Blastomycosis. W. M. age 46. Diagnosis from lung resection.



Figure 9.—Torulosis. C. F. age 60. Diagnosis by autopsy.



Figure 8. — Actinomycosis. Diagnosis by culture and smear of sputum.



Figure 10.—Torulosis. C. M. age 65. Diagnosis by culture of pus from chest wall.



Figure 11.—Coccidioidomycosis. C. M. age 24. Diagnosis from surgical decortication.

diagnosis rests with the laboratory.

Figures 3 to 11 show the x-ray appearance of 9 cases of definitely diagnosed pulmonary mycosis which have been seen at the Confederate Memorial Medical Center; they demonstrate clearly that diagnosis is not possible from the x-ray picture alone.

MUCORMYCOSIS

A new mycotic disease has been added to the group shown in classification of Table I. This is mucormycosis,[5] caused by fungi that are common in nature, frequent laboratory contaminants, and not usually considered to be pathogens. It is generally encountered as a complication of other diseases, uncontrolled diabetes mellitus and leukemia being the most common. This disease has been recognized only in the U. S., Canada, and England, but is probably world wide in distribution. Unlike most of the older mycoses, it is an acute rather than a chronic infection, and takes cerebral and pulmonary forms mainly. Diagnosis has been made by examination of tissue specimens taken at autopsy, the characteristic finding being that of invasion of arteries and veins by fungi producing thrombosis and infarction.

Culture is not in itself diagnostic since, like monilia, it is such a common contaminant. Control of the predisposing disease such as diabetes mellitus is the only known treatment. It is not a common illness and is being discussed because of its fairly recent investigative interest.

THERAPY

Therapy of these various pulmonary fungus infections has made definite progress in recent years. Actinomycosis is best treated with penicillin in a dose between one million and two million units a day for one or two months.[6] Longer periods of treatment are required for more severe cases. Some recommend concurrent therapy with sulfonamides.

Blastomycosis can be successfully treated with hydroxystilbamidine. Amphotericin B is probably much more potent, less toxic, and more rapidly effective. Dr. John Seabury[7] has done extensive research with this drug and informs me that it is at the present time also the most effective agent for treating systemic candidiasis, cryptococcoccosis, coccidioidomycosis, and histoplasmosis. However, this drug has not yet been released for general use.

Nocardiosis is almost always improved by treatment with one of the sulfonamides but these are only nocardiostatic.

Aspergilli are sensitive to the diamidines. Potassium iodide is still used on sporotrichosis, but in severe involvement, the diamidines should be tried.

SUMMARY

To summarize I have attempted to present the diagnostic procedures to be utilized in making a diagnosis of the various pulmonary mycoses. A few x-rays were shown to point out the necessity of laboratory aids, especially cultures, in making a diagnosis. A relatively new mycotic disease, mucormycosis, has been discussed briefly. And last, the present day therapy of choice for these fungus infections has

been listed. Amphotericin B seems to be the most effective therapeutic agent at the present against the yeast-like fungi.

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SOME EXPERIENCE WITH PERPHENAZINE, A NEW TRANQUILIZER

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We have recently been furnished the opportunity to try a new tranquilizing preparation of the phenothiazine family, perphenazine (Trilafon, Schering).* Our case material consisted of 28 patients in the Active Intensive Treatment Building of the East Louisiana State Hospital. These included patients of both sexes, predominantly young and middle-aged. Only white patients were available for this study.

The drug was used alone in the handling of some patients. In others, it was used in conjunction with other methods of treatment, especially electric shock. We administered the drug over a period of time for chronic tranquilization in most instances; in some cases we used it parenterally to secure immediate sedation.

The drug was supplied to us in 4 mg., 8 mg., and 16 mg. tablets for oral administration, and in ampuls of 1 cc. (5 mg.) for parenteral injection. In many cases we began with the administration of 4 mg. three times daily. This usually achieved no observable effect. Definite responses were, however, obtained with 8 mg. three times daily. We rarely gave as much as 16 mg. three times daily.

SIDE EFFECTS

By and large, the impression of the staff toward perphenazine was not favorable as compared with other tranquilizing agents with which they had had previous experience. Our initial efforts with perphenazine, unfortunately, brought out side effects of the drug which were frightening. The occurrence of marked extrapyramidal syndromes with protrusion of the tongue and drooling made the patients who incurred this effect the object of immediate concern to those about them.

There was one death among the patients who received perphenazine. While fairly certainly not related to the use of the drug, this death nevertheless had a dampening effect. This case is summarized at the end.

The most striking side effect of perphenazine was the production of an extrapyramidal syndrome. This was sometimes of quite rapid development, coming on, for example, in one case one day after the institution of the drug. Characteristic of the extrapyramidal syndrome produced by perphenazine was marked protrusion of the tongue and drooling. In some cases there was development of a notable motor syndrome without appreciable tranquilization. At the same time, we can vouch that the drug has definite effect as a tranquilizer in many patients.

We observed habit-forming properties of the drug in only one case. This was a patient who had been admitted for alcoholism but should probably be regarded as a schizophrenic. He received 4 mg. of perphenazine three times daily. After the drug was discontinued, he asked for it

* Perphenazine for this study was generously donated by the Schering Corporation, Bloomfield, New Jersey.

again and said of it, "I don't worry when I'm getting it. I don't get those depressed moods that I did that caused me to drink. I don't worry and I don't get depressed."

One patient who had previously been given chlorpromazine was tried on perphenazine. He expressed a preference for the former drug. However, it should be noted that neither of these two drugs alleviated his chronic state of depression enough to keep him out of the hospital, nor, for that matter, did electric shock treatment or iproniazid which has since been administered to him.

It is interesting to note that one patient who was begun on 4 mg. of perphenazine three times a day, on March 15, complained as early as March 30 that his tongue had been hanging out and that he could hardly talk. We did not then realize the connection between perphenazine and lingual protrusion but, relating the patient's complaint to his hypochondriasis, increased his dose to 16 mg., three times daily. In three days we had produced one of the most striking pictures of Parkinsonism, natural or iatrogenic, that the writer has ever seen, with bodily flexion, protrusion of the tongue, and viscous ropy saliva drooling downward from its tip. On April 3, the drug was stopped with rapid return of the patient to normal motility. He later described his feelings while taking the drug as comparable to being on a "dead drunk"; he had been drowsy and his muscles "seemed to tighten up like cramps."

Another patient, an elderly female, had similar unpleasant sensations from the drug. This woman for years had refused to acknowledge the death of her husband; she demanded insistently of the psychiatrist that her (deceased) spouse be summoned to take her home. She was given perphenazine to determine whether it would reduce her agitation. The drug was administered to her in varying doses, 8 mg. three times daily, and 16 mg. three times daily. Because of somewhat inconsistent results, and the suspicion that the patient was not actually ingesting the drug, we changed from oral to intramuscular medication of 5 mg., three times daily, and later 5 mg., twice daily. While receiving the drug she complained of "drawing all over" and of weakness. She became rigid and incoordinated in movement. Finally she could hardly rise. She lost her appetite. Her speech became slow and thick. However, there was little alleviation of her anxiety and, so long as she could move about, little diminution of her excess activity.

At the close of her two months' period of observation with perphenazine, the patient was asked to describe its effects upon her. Her statement can not, of course, be taken at face value because she always complained. She wrote: "The medicine makes me feel very nervous and restless, and I do not sleep soundly. I was feeling so well and was helpful, much more than I now am to both the nurses and patients, before taking. Please have my husband take me home immediately."

The refusal of food on the part of the above-mentioned patient is probably related to the administration of perphenazine. Food was also refused by the two patients summarized at the end, both of whom received oral and parenteral perphenazine. The refusal may or may not be related to the drug in their cases: both of them presented psychiatric pictures frequently associated with refusal to eat.

We used injectable perphenazine in six cases. For the most part it was given intramuscularly. In one case a violently disturbed patient was first given 5 mg. intramuscularly; when this failed to quiet her significantly, she was given an additional 5 mg. by the intravenous route. There was some immediate calming, but fairly soon afterward she had to be given intramuscular chlorpromazine.

One young woman, transferred to us from another hospital in a greatly disturbed state despite the initiation of electric shock treatment there, was given two intramuscular injections, three hours apart, of 10 mg. of perphenazine each. Previously so excited that she required

restraint, after the injections she slept well all night.

One case has already been mentioned in which regular dosage of intramuscular perphenazine was administered because it was doubtful whether the patient was taking the oral perphenazine that had been ordered. Her intramuscular dose was 5 mg., three times daily for four days; then, because of the lethargy and unsteadiness which she developed, the dose was reduced to 5 mg. twice daily. The two cases summarized at the end both received intramuscular and oral perphenazine, and both developed marked extrapyramidal syndromes. The sixth case who was given parenteral perphenazine received only one dose of 5 mg. intramuscularly in an attempt to alleviate nausea and nervousness of which she was complaining. Though these symptoms were said to be ameliorated she was receiving electric shock treatment at the time so that no conclusions can be reached concerning an independent effect of perphenazine. In none of the patients who received parenteral perphenazine was there any local reaction.

Two cases which present features of interest in connection with perphenazine are briefly abstracted below.

CASE REPORTS

Case No. 1. P. J. L., a boy of 19, was brought to the East Louisiana State Hospital on April 11, 1957. The present writer saw him while he was still in the automobile. The patient was asleep with his head on the lap of his escort. Information that came with him said that he had been given intravenous amobarbital sodium to quiet his excitement.

The following day, April 12, 1957, the patient was awake and able to sit up, but created no special problem. By April 13, 1957, he had become excited and had to be restrained hand and foot.

Physical examination on that date revealed a young adult male lying on the bed with both upper and lower limbs in restraints. There was severe facial acne vulgaris. The heart was regular and no murmurs were heard. The chest was clear anteriorly so far as could be ascertained. The blood pressure was 150/100 in the right arm with the patient recumbent but noisy and straining. The abdomen was negative. The knee jerks were lively. The dorsalis pedis arteries were palpable.

Much of the time the patient kept his eyes closed. He shouted aloud intermittently as if he were conducting one side of a conversation. Certain themes kept recurring in his stream of talk. Some representative snatches include the following: "Thought I didn't know what was going on, but I am finding out. Getting hotter and hotter all the time. Or else you all are going to have to come with me too. That is the date that I was expecting. I didn't want to tell you. That was what was worrying me. I hear a horn outside."

There were frequent references to the "date"; once the patient referred to a date which his mother had with a man. He frequently cried out that he was burning and that he was getting hotter. He mentioned the names of several people who were not present.

The patient was given perphenazine, 10 mg. intramuscularly, at once and 8 mg. three times a day by mouth. April 16, three days later, he was still out of contact, although somewhat quieter. He had to be retained in seclusion and, when the door was opened momentarily, attempted to leave the room by forcing his way past someone at the entrance. He was not eating well, and had vomited. Moreover, he displayed a marked extrapyramidal syndrome with drooling of thick viscous saliva which hung down from his mouth. Perphenazine was discontinued, our intention being to initiate more drastic treatment.

April 17, the patient was still out of contact, noisy, and violent. The extrapyramidal syndrome had largely disappeared. His temperature was elevated and he was given two doses of aspirin, 0.6 Gm. each. His temperature fell, but rose again and at 1 A.M. on April 18 he was transferred to the Infirmary. At this time his temperature was 102 degrees, his pulse 128, his respirations 24, and his blood pressure 190/90. He was given 0.5 Gm. of streptomycin and 600,000 units of penicillin.

At 5.30 in the morning of April 18 the patient was seen by the physician in charge of the Infirmary. The patient then complained of a sore throat and of pain in the legs. He begged to have his restraints removed.

The heart sounds were good and the pulse rate about 90 per minute. The lungs were negative.

The restraints were removed and the patient, despite his promise to stay in bed, went to the water fountain for a drink. Shortly thereafter he was found underneath the bed. Accordingly, restraints were reimposed. At 8 A.M. he was given 0.6 Gm. of aspirin. At 1 P.M. because of overactivity, he was given an intramuscular injection of 0.25 Gm. of amobarbital sodium. His temperature rose again to 103.6 degrees and his pulse rate increased to 120 per minute. He was so restless that the amobarbital sodium was repeated at 5 P.M.

About 7:45 P.M. the Infirmary attendant found the patient in deep coma with vascular collapse. By the time of the arrival of the writer at 8:15 P.M. the patient had been given 2 cc. of nikethamide. The radial pulse was imperceptible and the heart sounds inaudible. There were faint respira-

tory movements. Additional resuscitatory measures were applied, but the patient's respiratory movements ceased at 9:05 P.M. and he was pronounced dead.

Autopsy was performed by Dr. Albert L. McQuown at Our Lady of the Lake Hospital in Baton Rouge. The summary states: "Necropsy reveals no absolute anatomical or microscopic cause of death. The only interesting finding was marked increase in glycogen of the liver cell nuclei and early focal necrosis. This is not sufficient to explain the death. Occasionally psychotic patients die suddenly as this boy did with no known cause. This apparently is another of these cases."

After the patient's death a number of telephone calls came into the hospital from the patient's neighborhood. He was said to have been bitten by a dog. Dr. J. D. Martin, Chief of the Section of Epidemiology of the Department of Health of the State of Louisiana, made a detailed investigation which he summarized by saying: "A rumored human death due to rabies was investigated. The fact that the dog which bit the man was alive and well at least twelve days after the biting, and that the man lived for eleven days after developing maniacal symptoms, suggests an illness other than rabies. The two most likely diagnoses are:

1. Schizophrenia—catatonic type with liver damage.
2. Encephalitis—undetermined etiology with liver damage."

However, when the microscopic reports on the brain arrived, they did not support encephalitis as a diagnostic probability.

Case No. 2. I. H., a young woman of 32, was admitted to the East Louisiana State Hospital on April 8, 1957. She was the mother of five children. Her illness had been gradual in onset with increasing excitement, talkativeness, and insomnia. The admitting physician noted that she reeked of paraldehyde and that she cursed and talked incessantly. She was excited, overactive, threatening, and of the belief that people were against her. Bruises were noted all over her body.

Examination by the present writer, on April 9, 1957, revealed a lean hyperactive young adult female. She was edentulous. There were many bruises over the body. The heart was rapid and regular. The lungs were clear. Blood pressure was 140/80 in the left arm with the patient recumbent. The abdomen was lean and striated.

The patient was markedly hyperactive and excessively talkative. She was restrained with a cuff. Even with this she moved about so actively that it was feared that she would fall off the bed. Upon any stimulation she embarked upon a noisy stream of incoherent chatter. Questions directed to her served as mere points of departure for superficial associations which amounted to word salad.

The patient was given 10 mg. of perphenazine intramuscularly and this was later repeated; 8 mg. of perphenazine was ordered three times daily, but she refused medicine by mouth and was given a third injection of 10 mg. of perphenazine by the intramuscular route.

The following day the patient was almost mute. She lay on her bed motionless in an attitude of universal flexion. The tonus of her limbs was normal. She drooled thick viscous saliva which she wiped off on the bed clothes. Upon request she protruded her tongue but did not answer when the examiner spoke to her.

A day later, April 11, the patient had lost her extrapyramidal syndrome and was again hypertalkative. Her dosage of perphenazine was increased from 8 mg. to 16 mg. three times daily. By April 15, her motility disorder had returned but was less marked than previously. Her tongue protruded but she did not drool. She was overtalkative and as incoherent as before. Later drooling recurred. April 18, perphenazine was discontinued. The patient then was given a series of eleven electric shock treatments to which she responded well. Her mental state cleared and she became rational. She was paroled from the hospital on June 4, 1957.

Note: Appreciation is expressed to Mrs. Earline Wilcox, R.N., for her help in making this study.

THE PSYCHOSOMATIC ASPECTS OF HYPERTENSION *

ROBERT S. PICARD, M. D.
Shreveport

This paper will cover my personal experiences in the psychosomatic evaluation of the patient with hypertension. It covers a group of approximately 50 people whom I have seen primarily in the past year, but several of whom—before I became primarily interested in the subject—over a period of four to five years. I have spent anywhere from forty-five minutes to twenty hours with these individual patients in the discussion of the psychic backgrounds and their present personality problems. In this study there were found

* Presented at the Seventy-seventh Annual Meeting of the Louisiana State Medical Society, May 7, 1957, New Orleans.

to be certain patterns that kept recurring with such a high percentage of frequency —quite a few of which had never previously been reported in the medical literature—that I felt it to be of value to stick my neck out to present these findings at this meeting.

CHILDHOOD

From my observations, there is one experience that appears to be commonly present in the childhoods of all hypertensives. What I have found primarily in the background of all these people is the realization at an early age that existence on this planet indeed does take place in a "vale of tears". Not for themselves; but for others do they find out early that life is not always pleasant, that there are arguments, there are scenes, there are people who suffer, who shoulder responsibility which they have no desire of doing. In no hypertensive that I have treated or talked to has this failed to come out. There has always been remembered a feeling coming on before adulthood of compassion for a parent or a parent substitute. Which parent, surprisingly in either sex of the hypertensive, does not matter. I have seen it more frequently expressed as compassion for the mother but pity for the father is certainly not rare, and in an occasional case is there pity expressed for both parents, or a sick older sibling. This parent has undergone unpleasant life experiences that he has not failed to conceal from the child nor his emotional reaction to this experience. Usually there are quarrels and although these may not be too many, two or three, they are always severe in nature. With these severe quarrels usually the mother ends up by crying, expressing her unhappiness to the child and all too frequently to be just a matter of coincidence telling the child, "If it were not for you I would leave him; I would have left him years ago." This is the most common term but the child may see the father, to keep the family together, doing work he does not like and this dislike he communicates to the child who will be hypertensive. Or it may be that the parent is ill or dying and taking his illness or death as a major universal catastrophe. He or she expresses his pain and suffering, communicates his need for pity and the child complies and does so, for the rest of his or her life.

Twenty to forty years from these incidents, depending on heredity and how dominating a spouse the hypertensive chooses for himself, hypertension develops. The quarrels, the crying, the dying need not have been incessant but the germ of sympathy has been implanted and with it the sense of pity and the realization how easy it is to hurt the feelings of a fellow man. It is for this reason, not that his parents object to fighting, which the hypertensive's parents do in about the normal percentage, nor that he receives whippings, which he does, but which emotionally causes only so much transient physical pain—they are not the personal affront that they are to the ulcerative colitis patient—it is for this reason he stops fighting. At an early age he learns to hold in his hostility and to control his resentment because he feels genuinely sorry for people.

Before leaving it, one more important aspect of the childhood of hypertensives should be mentioned. Ninety-nine per cent of the hypertensives as children have attended a funeral. There he hears the crying and there he sees the sorrow. No one has time to explain to him the naturalness of death. Everyone is weeping: everyone is sad; death must be bad.

I would like to say only a few words about adolescence. During this period the pre-hypertensive is usually shy and bashful. He is usually under strict surveillance from his parents as to where he is going, with whom he is going and when he will be back. He or she indulges in much less frequent sexual activity than the average person in his social strata. The pre-hypertensive female usually arrives at the marriage bed, to quote, "as green as grass".

MARRIAGE

Then comes marriage. The average percentage of hypertensives who have married is approximately the same as the

national average, although in the male, it is usual to see them marrying later in life than normal. When the individual with the duodenal ulcer is asked why he or she married, the answer is simply, "I loved him." I would like to quote some of the reasons I have had from the hypertensive. "I married because my mother was getting married and I was living with her and didn't like the man whom she was marrying." "I got pregnant." "I was 14. He was 30. He met me at school everyday and gave me candy all the time; I thought marriage was going to be like that all the time." "She was getting old and I was getting older. We found that we both needed someone." Several times, "I don't know." Generalizing with the above as examples, the first two cases married because they were victims of circumstances. Or in the others, as is much too common, because he or she feels sorry for the individual he is marrying. They marry people who are unhappy with their family; they marry people with a good education and with money who in spite of these qualifications have gotten as far as they can and have not reconciled themselves to their limitations nor ever will; they marry cripples or marry individuals who have just lost their spouses; they marry much too often out of pity and end up being dominated by non-pitying spouses.

ANXIETIES OF LATER LIFE

Two to forty years later these individuals turn up in our offices. They have just been turned down for insurance, or the company for which they work has just found on the annual or tri-annual physical examination that their pressure is elevated. Or they come in because they have had a stroke not having been seen by a doctor for twenty-five years. Or they are in heart failure unable to carry out the work that they had previously been able to do. Perhaps they have blacked out three or four times. Or one of their close friends has just died and they have become anxious about themselves. Or, if females, they are pregnant. It is only rarely that they come in for annual physical examinations to the doctor's office. The hypertensives do not want to know if anything is wrong, they do not want to worry about it. They feel that if they do not know, perhaps their symptoms will go away.

Looking at the individual sitting before you, you see a person who is anxious, but one who does not want you to think he is worried about himself or about his job. He does not want to admit to himself the insecurity that sickness makes him feel. From his history and from talking to the people who know him, you find out he has never let anybody else know these anxieties. His wife will tell you he never complains, he has always been independent. He likes to do for himself; that he likes to do for others. If he does a favor for others, he will not expect one in return. "I don't know why I should have it happen to be sick. I never feel sick. It has been twenty years since I have seen a doctor. I have always lived right." And inwardly he is as tense as hell.

You inquire into his social life, his marital background. "Doc, there is nothing there. I couldn't have married a better wife. We've been married for thirty years and we have never had a quarrel. There is nothing there to give me high blood pressure."

You check his blood pressure; it is 180 to 260 systolic, 110 to 120 diastolic in the right arm; a little less in the left. You talk to him for a while about the weather, about the acceleration of the 1957 Pontiac, about the latest winner on the 64 Thousand Dollar Question, about his favorite fishing flies. You recheck his blood pressure and it has fallen to 160/90. This reading most of us say is basal. We tell ourselves we have gotten the patient rid of his anxiety and this patient is not hypertensive.

But, we must realize that this moment is the exception; this patient for the majority of his twenty-four hours, even during his sleeping hours, is not as we see him now in the relaxed state. The hostility and resentment he cannot express is within him more than it is away. Having

no blood pressure instrument to record the blood pressure twenty-four hours a day we must extrapolate and say that it is more common for the pressure to be elevated as it was when we first saw him than it is after we get him relaxed.

In my own practice I like to consider any individual who comes to my office, no matter what his age, on three occasions with pressure over 160 systolic, 100 diastolic, as being hypertensive. Arbitrary as it is, it is as satisfactory as any definition that I have come across elsewhere. It does of necessity add one new diagnosis to our list of nomenclature and that it, when the pressure is within normal limits—hypertension, essential, quiescent.

Having rechecked the pressure, you reassure the patient, you tell him to come back at periodic intervals. Now as regular as clockwork he will be back. He does not want to die—not with Keats has he ever "been half in love with easeful Death, called him soft names." Now he wants the best medical advice he can get. He wants to stay as long as possible on earth.

You put him on medicine and if there is any manner that he can afford—inversine, ecolid, apresoline, hydrolozine, ansolysen, and so forth — without depriving anyone in his family of anything he will continue to take. If his spouse says anything about it, however, or if he feels that he is depriving spouse of anything, he will stop it; he will let her spend the money. However, there will have appeared another point of repressed hostility. "I am sick. I am about to die and I can't buy my medicine."

During these later visits you will inquire further into his social life. You will find that the lack of argument in his household is the pure result of the hypertensive's doing. He will finally tell you that when his spouse starts an argument he will walk away. "I have never seen anybody gain anything by arguing. I don't like to argue. I never have." You will ask him specifically and he will tell you that he can't stand to hear two other people argue. When they start he again leaves. "It makes me feel funny. I know it isn't good for me." Then a few visits later there will finally come out some of the latent hostility against his wife, or in the case of the single individual with hypertension, against his parents. Then he will admit that he has always given in, that all his life he has been driven by his inability to stand up to people, to his wife, to others. No cause, or any amount of hostility is worth an argument.

You discuss sex with the hypertensive and there is only the rare individual who has an adequate sex adjustment. The male is usually getting too little, but in either the male or female with the general lack of aggressiveness the opposite may be true, the spouse wants it too often. Especially, this is true of the female hypertensive. Most of them are frigid and can recall only two to three occasions in their life, if any, where they have reached the climax.

Gradually, we learn of his distrust of death. Most patients with hypertension die anxiously. Actually in many cases this anxiety precipitates their death. He is afraid to relax to go to sleep or be sedated, afraid that he will never wake up.

In this line I think it is wise to bring out the frequent finding that most hypertensives believe in a physical hell, that none of them are ever sure that they will not spend eternity burning in fiery blazes. In spite of all they have done, they are noways sure they will be allowed admittance to Heaven. They are the individuals who, if offered their lives to live over again, state they would live it differently, that they would not have as much premarital experience as they did, they would not drink the few beers they have, they would not engage in as frequent arguments.

TREATMENT

Therapeutically, if these findings be true, what can we do with psychosomatic medicine to help the hypertensive? First of all as doctors we must learn not to let a blood pressure of 220 alarm us. We have all heard it said that the patient should never be told when his pressure is

high as it would excite him more. Not only in this psychosomatic illness but in every other one, the patient must be taught to learn to live with his weakness. Hiding from him this anxiety cannot prevent him from having others. Besides we might as well face it, generally our profession make bad liars. The patient can usually tell by a face when we are lowering the blood pressure 60 to 80 points. We ourselves must come to believe the statistics that hypertension is not, even without proper management, necessarily a serious or fatal disease. If we are not alarmed the pressure is 240, neither the patient nor the family will be.

It is a well known fact that hypertension in a majority of cases is handled well by the human body. We have all seen patients alive thirty years after the discovery of their hypertension. To quote only one reference, Perera, following 500 patients, one to forty years, found an average survival time of nearly twenty years.

Secondly, instead of forcing the patient to quit his job we should encourage him to work. They, as a group, readily admit the enjoyment of working. Their whole life revolves around giving to the family or others everything they want, sublimating their own wishes. So when they quit work, they have nothing to do with themselves. Their work has always been their greatest relaxation. We then do them an injustice by making them quit, by exaggerating the ill effects that work will have on their hypertension. I am sure all of us have seen cases in which six months after hypertensives have retired they have deteriorated rapidly, have had a stroke, have gone into failure and have died. It has been the fashion in the past to state that this would have happened much sooner had they continued working. I disagree. I find that working, they do much better. I am sure I must have come across one, but I can never recall a hypertensive having had a stroke at work.

Thirdly, as a consequence of the above we must encourage the hypertensive to find a hobby while he is still working. So that when the time eventually comes, as it must to all of us, when he must quit he will have something besides his health to occupy his mind. As a whole, hypertensives have no hobby. They take inactivity badly. They spend their moments anxiously worrying about their conditions and reading the obituary columns, wondering if their name will be the next to appear.

Fourth, and most importantly, we must teach the hypertensive to ventilate his hostility and his resentment. If he is in the position like Truman and can write nasty letters to a music critic, it is ideal. If financially he cannot afford to offend others, let him at least write the letters and tear them up, or go out in the car and blast the winds with his ire. Teach him at least to admit hostility and that hostility is normal in the human race. Even to themselves consciously, hypertensives deny that they are mad at anybody.

Don't caution them, "Don't fret." "Don't blow up or you will have a stroke." In the first place, it is impossible not to get upset. I would wager that the greater majority of you here on vacation have in the eight hours since wakening this morning at least found one thing to be annoyed with. I have. The hypertensive is no different.

Then what is the use of adding another restriction on the patient that he will find unable to carry out and which when he does become angry will give him further cause for worry about himself. Encourage him to ventilate. If he and his wife have had no arguments in thirty years, the day he first sees you is as good a day as any for him to start. I will lay you even money and will come out winner, that she will give him provocation within twenty-four hours after seeing you. I do not have to tell you people do not live together without differences of opinions.

But in so doing you must explain at times we all get our feelings hurt and that in hurting his wife's feelings he is not actually harming her. Very few of them will deny that the wife would rather have

a mad husband than a dead one. In spite of the spouse's dominating tendencies this is true. Once over the shock, I have never heard them object to a good argument.

Leading from this as a corollary we must advise them of the basic cause of hypertension; their excessive empathy. Hypertensives come in a sick room and undergo worse suffering than the patient. They go to the funeral and feel quite a bit worse than the dead individual and as bad as any of the crying relatives. They see an unhappy child or a dog that has been run over and their whole being indulges in living out the tragedy. They anticipate hurting another's feelings and if at all possible they never do. If inadvertently they do, they worry over it for a week placing themselves in the others position. At all times each action in life is primarily predicated on these sensitive feelings. Never do they do anything that might in the least conceivable way injure anyone even momentarily.

This is, of course, a result of a lifetime experience. It cannot be changed overnight, but it is surprising how soon the hypertensive realizes that others' feelings are not half as sensitive as he has been giving them credit for nor one-quarter as sensitive as his own.

Lastly, as much as anyone who has not visited the place, we should assure the hypertensive that when death comes it is not necessarily evil. It is not necessarily to be feared. Here again he should be encouraged to face his fears, not encouraged to avoid them. He should be urged to go to funerals, to accept the naturalness of death.

CONCLUSION

In conclusion, I would like to bring up the generality that hypertension should not be an exclusion diagnosis and that in an individual with hypertension who admits to an inability to express hostility, one who has had no arguments for years, one who expresses more than the normal concern for the feelings of other men and lastly and least important, one who displays whether consciously or unconsciously and exaggerated concern about death, we without the aid of the normal IVP, the normal Regitine test, the normal 17 keto-steroids should make the diagnosis of essential hypertension.

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SENIOR STUDENTS IN PLACE OF INTERNS IN UNIVERSITY AFFILIATED HOSPITALS

The House of Delegates of the Louisiana State Medical Society, on May 5, 1958, passed a Resolution requesting that the desirability of using senior medical students in clinical clerkships in university affiliated hospitals be considered as a means of replacing first year internships in those hospitals.

This Resolution was introduced by Dr. C. J. Tripoli for the New Orleans delegation. It was the sense of the members of the House of Delegates that this matter should be presented to the House of Delegates of the A.M.A.

The thought is that the work of the first year of internship in university connected hospitals is also being done to some extent now by senior students in clinical clerkships and by first year residents. An extension of the activities of the clinical clerks and first year residents would relieve the necessity of first year internships, and would allow the medical school to use its facilities for undergraduate instruction and residency training programs. Following graduation, the new physician could seek further training in a residency program or in an internship in non-university affiliated hospitals. These hospitals would then be further stimulated to provide adequate intern training programs.

This idea has been presented before in recent years. It was discussed in some detail at a symposium at the Fifty-first Annual Congress on Medical Education and Licensure, in 1955. The idea is not new in medical education. Plans somewhat similar have been in use in Europe for years, and in Charity Hospital of Louisiana a plan was in operation in 1878, whereby the students in their final year at the medical school did the work of interns. They were called hospital students.

The effect of this change. which might be superficially regarded as a minor one in the routine of medical training, would be far reaching. The principal benefit to medicine as a whole would be the shortening by one year of the necessary training period. It would not in any sense hamper the young physician in his efforts to secure further training as he could go into the first year of a residency training program wherever such were available, or he could take an internship in a non-university affiliated hospital in which an adequate intern training program was available. This change would cause an undetermined number of recent graduates to seek internships in the non-university af-

filiated hospitals which have suitable intern training programs. There are now 11,000 internships available in this country, and we are graduating from American schools about 7,000. The gap is partially filled by graduates of foreign medical schools. For the nation as a whole, 82 per cent of the positions were filled, 62 per cent by graduates of American schools.

The effect of this change on the medical schools would be that a certain amount of money used in paying interns' salaries would be saved for the schools. However, it would necessitate the schools operating on a twelve months' basis, and would make necessary increased attention to the undergraduate and first year residency programs.

The regulations of many bodies which have to do with medical training and licensure would have to be altered to permit this system to work. Those State Boards, specialty boards, residency training regulations, and various formal regulations requiring one year of internship would have to be altered to accept the change in educational program even though the substance of the training would be the equivalent of what it is now.

It is agreed on all sides that the purpose of internship is educational and that the service to the hospital and the patients is an incidental part of that experience. It is also agreed that the period of preparation for the practice of medicine has become lengthened, possibly unduly. Some schools have formerly required four years of pre-med. and are reducing it to three. A change that would shorten the period of training by another year without affecting the value of that training would be desirable.

The strain on the medical schools would be increased by the year round program. The pressure to establish such a program, however, will shortly be felt as the result of an unexpectedly rapid increase in population. It is anticipated that the population in 1975 will be 228 million, and that the number of doctors will be 127.1 per 100 thousand, where now it is 131.9 per 100 thousand.

All things that pertain to modern medicine are complicated and are in a state of flux. It is in the interest of the individual physician that the procession of changes be controlled to insure an adequate supply of properly trained doctors.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

HOUSE OF DELEGATES
MAY 5-7, 1958

Minutes

Minutes of 1957 meeting of *House of Delegates* approved as recorded.

Minutes of meetings of *Executive Committee* since 1957 meeting of House of Delegates approved as recorded.

Special Order

Introduction of *new members* of the *House of Delegates.*

Recognition of *guests* and *fraternal delegate.*

Roll of members who died since 1957 meeting read.

Talk by *Dr. George F. Lull, Secretary and Assistant to the President of the AMA.*

Greetings from *representatives of the Woman's Auxiliary* of the State Society and of the AMA.

Announcement of election of *Dr. E. H. Lawson* as *president-elect* of the *National Board of Medical Examiners.*

Talk by *Mr. Robert LeCorgne, attorney,* member of the firm of Adams and Reese, concerning legal matters of interest to the Society.

Announcement of *scientific exhibit awards.*

Report without Recommendations

Following *reports accepted as printed:*—Secretary-Treasurer, Chairman of Council, Councilors: First District, Second District, Third District, Fourth District, Sixth District, Seventh District, Eighth District; Committees: Accreditation of Hospitals, Aid to Indigent Members, Alcoholism,

American Medical Education Foundation, Arrangements—1958 Annual Meeting, Blood Banks, Budget and Finance, Child Health, Chronic Diseases, Committees, Congressional Matters, Diabetes, Gamma Globulin and Salk Vaccine, Geriatrics, History of Medicine in Louisiana, Hospitals, Industrial Health, Lectures for Colored Physicians, Liaison with Louisiana State Nurses' Association, Mediation, Medical and Hospital Service in re Insurance Contracts, Medical Defense, Medical Education, Medical Testimony, National Emergency Medical Service, Neuropsychiatric Service at Charity Hospitals, Public Health of the State of Louisiana, Scientific Work, State Hospital Policies, Woman's Auxiliary.

Other reports, containing no recomendations, accepted: Public Relations Counselors, Legislative Consultant, AMA Delegates.

Reports with Recommendations

President: Referred to Committee on President's Report and report of this Committee, approving following recommendations, adopted: 1. The Society formally request each specialty group to furnish a given number of columns pertinent to their own specialty and which are suitable for use by the Society in providing the newspapers of Louisiana with a steady source of material for a Society-sponsored weekly health column. 2. The Society cooperate more completely with the Shreveport Medical Society in conducting the "Medical Progress" exhibit at the Louisiana State Fair, particularly in furnishing help from various parts of the State to man the exhibits at least part of the time when the fair is in progress. 3. The Society approve continuance of present exemptions accorded non-profit hospitals by the Labor Management Relations Act (Taft-Hartley Act). (Under the existing federal regulations, non-profit hospitals are released from the obligation of entering into negotiations with trade unions.).

Past Presidents Advisory Council: 1. The Past Presidents Advisory Council recommends that the Society continue to cooperate with the Medicare and Welfare Vendor Plan in order to have some influence in their operation although this does not constitute approval of these plans: No action, due to action on report of Committee on State Department of Welfare. 2. Committee on Medical Defense make a report each year to the House of Delegates concerning malpractice suits in previous years, summarizing findings and results without mentioning too many details or names: Approved.

Cancer Commission: 1. Members of the Society give further consideration to the more widespread employment of cytologic studies as a means of accomplishing earlier diagnosis of cancer, particularly of the uterus: Approved. 2. Members of the Society be urged to more frequently perform both digital and endoscopic ano-rectal examinations: Approved. 3. Amount of $500.00 be budgeted for use, if necessary, by the Cancer Commission in carrying out its various functions during the forthcoming year: Approved. (Previously approved by Committee on Budget and Finance).

Committee on Domicile: 1. The Society again extend sincere thanks to the Tulane University School of Medicine for generosity in furnishing office space for the organization: Approved. 2. No building project be undertaken at this time: Approved.

Committee on Federal Medical Services: 1. Renewal of a Uniformed Services Medicare Contract for the year 1958-59, under the guidance of the Executive Committee at the time of renewal negotiations: Approved. 2. House of Delegates go on record as opposing extension of Medicare-type programs to government employees and OASI recipients: Approved. 3. Continue endorsement of the AMA position that federal medical care responsibility for veterans be limited to service-connected illnesses and injuries: Approved.

Committee on Journal: 1. Dr. Sam Hobson and Dr. J. E. Knighton be re-elected as members of the Committee: Referred to Nominating Committee and Drs. Hobson and Knighton subsequently elected upon recommendation of this Committee.

Committee on Louisiana Organizations for State Legislation: 1. The Committee on Louisiana Organizations for State Legislation be continued: Approved. 2. The Committee be directly instructed concerning legislation being considered or proposed by the State Society: Approved. 3. The Chairman of the Committee on Public Policy and Legislation of the State Society be made chairman or ex-officio member of this Committee: Approval of ex-officio membership of Chairman of Committee on Public Policy and Legislation on LOSL Committee.

Committee on Materal Welfare: Proposed legislation in regard to adoption of children referred to Committee on Public Policy and Legislation.

Committee on Medical Indigency: 1. The Board of Indigency and the Board of State Hospital Policies be combined into one; namely, "The Board of State Hospital Policies and Indigency": (Interpretation of recommendation—Committee on Medical Indigency of the State Society and the Committee on State Hospital Policies of the State Society be combined): Recommendation referred to Committee on Committees and recommendation of that Committee that this be approved adopted.

Committee on Mental Health: 1. This Committee be recognized by the Louisiana State Medical Society as the body for liaison with the Governor and the State Department of Hospitals concerning matters of mental health: Tabled. 2. The Louisiana State Medical Society recommend to the appropriate authorities that a fully qualified physician be secured to administer the state mental health program: Tabled.

Committee on Public Policy and Legislation: 1. Continued close contact between the family physician and the legislator should be maintained. This is most effective in an organized fashion with the

cooperation and integration of effort of the state Committee on Public Policy and Legislation as well as local committees: Approved. 2. Closer liaison should be formed between the Committee on Public Policy and Legislation and the Council on Medical Service and Public Relations as well as the Committee on LOSL. This could be implemented through the appointment of at least one LOSL member on the Committee on Public Policy and Legislation as well as one member of the Council on Medical Service and Public Relations on the Committee on Public Policy and Legislation: Approved. 3. Continued effort must be exerted to acquaint the membership of the Louisiana State Medical Society with the nature of Chiropractic and a campaign of intensified support of the Louisiana State Board of Medical Examiners in local cases involving prosecution of individuals violating the Medical Practice Act: Approved. 4. Members of this Committee be assigned to attend meetings of Coroners, District Attorneys, Sheriffs, and Pharmacists: Approved. 5. Presence of family physicians be urged during meetings of legislature: Approved. 6. Chiropractic and other cultist information be presented at scientific meetings of component societies: Approved.

Committee on Resolutions: 1. It is recommended that a copy of these resolutions be sent to each person and organization and also published in The Journal of the Louisiana State Medical Society. Approved.

Committee on Rural and Urban Health: 1. The Committee on Rural and Urban Health be continued: Approved. 2. One thousand dollars ($1,000.00) be appropriated for the use of the Committee: Previously approved by Committee on Budget and Finance and Executive Committee; action sustained. 3. Five hundred dollars ($500.00) be appropriated by the Louisiana State Medical Society to help the President (Louisiana Health Council) in carrying out the State meeting of the Louisiana Health Council to be held in Shreveport, November 7-9, 1958, at the Captain Shreve Hotel: Previously disapproved by Committee on Budget and Finance and Executive Committee; action sustained.

Committee on State Department of Public Welfare: This Committee be continued as requested by the Department of Public Welfare: Approved. 2. The House of Delegates approve the work of this Committee: Approved, with exception of fee schedule. 3. The fee schedule as pertains to medical care for Welfare patients, and presented by the Committee, be approved by the House of Delegates: Fee schedule not approved; leave matter as to how individual doctor pursues work with Welfare Department as own business or business of local society.

Council on Medical Service and Public Relations: 1. Society continue to make available to members, copies of Family Health Record booklet: Approved. 2. Participation in the following fairs in 1958: Louisiana State Fair in Shreveport; one fair in southwest Louisiana; one fair in central or northeast Louisiana: Approved.

Resolutions

Limitation of Admissions to Charity Hospitals: "WHEREAS it is the general belief of the medical profession in the State of Louisiana that the Charity Hospital system which is supported by the taxpayers of the State of Louisiana is intended solely for the purpose of serving the indigent sick residents of the State of Louisiana, the only exception to this being service to the critically injured wherein the Charity Hospital is the most available location to preserve life, or in certain experimental medical problems and;

"WHEREAS the treatment of the non-indigent non-eligible patient at the Charity Hospitals in this state is a burden to the taxpayers and to those doctors rendering their services free to Charity Hospital and;

"WHEREAS the medical profession is positive that the psychological reaction of allowing certain persons or classes of persons to receive benefits or service to which they are not entitled is bad for the individual as well as the State and the mental health of the Nation and its strength, and;

"WHEREAS further that the "SOMETHING FOR NOTHING" political or social trends or desires are believed by the medical profession to be false in basic principle and in actual fact, and;

"WHEREAS the State of Louisiana and its natural resources and great natural wealth should be able to provide sufficient industry and jobs for the approximately four million residents, rather than degrading them by charity, be it, therefore;

"RESOLVED that the present Administration of Charity Hospital at New Orleans and at any other Charity Hospitals where similar attempts are being made are to be complimented upon their effort to deny treatment to those who are not eligible, and should be given the full support of organized medicine and the political bodies should provide the funds necessary to accomplish this aim thus affording the funds of Charity Hospital to be used for the purpose for which the taxpayers intended it, and also render a better service to the needy indigent and further be it;

"RESOLVED that the Governor and all officials of the Great State of Louisiana, including the legislators, be encouraged to use such political strategy as to provide jobs by increasing industry for all those who are able to work. This would certainly lessen the indigent population and would lessen the need for indigent care. It would also encourage self-support, provide for dignity, and economic security of the individual, our state and our nation." Adopted.

Clinical Clerkships: "WHEREAS the non-university affiliated hospitals are experiencing great difficulty in obtaining interns in the numbers and of the caliber they require, is well known to all practicing doctors,

"WHEREAS many of the non-university affili-

ated hospitals have the facilities for providing excellent intern training programs, and

"WHEREAS positive action by the practicing doctors, the medical schools and the hospitals is needed to relieve this burdensome condition, therefore;

"BE IT RESOLVED that the House of Delegates of the Louisiana State Medical Society enlist the support of the medical schools of the State of Louisiana, suggesting the desirability of "clinical clerkships" in university affiliated hospitals.

"BE IT FURTHER RESOLVED that the attached communication be sent to the House of Delegates of the other state medical societies and the House of Delegates of the AMA." Adopted.

Radiation Control: "WHEREAS it is known that ionizing radiations such as x-rays, or radiations from radium and other radioactive materials, are potentially dangerous when applied to human beings, be it

"RESOLVED that the Louisiana State Medical Society urges and recommends the enactment of legislation by the Louisiana State Legislature which will permit only licensed practitioners of medicine, dentistry, podiatry, and osteopathy to apply such ionizing radiations to human beings, and be it further

"RESOLVED that the Louisiana State Medical Society urges and recommends the enactment of legislation by the Louisiana State Legislature which will limit the sale, lease, transfer, and/or loan of equipment and materials intended to produce such ionizing radiations upon human beings to licensed practitioners of medicine, denistry, podiatry, or osteopathy, or to hospitals, clinics, and other similar institutions where such equipment will be under the direct supervision of such licensed practitioners of the healing arts as noted above." Referred to Committee on Public Policy and Legislation for report to Executive Committee.

Medicare: "The Iberia Parish Medical Society in meeting on April 10, 1958 adopted a resolution to wit:

"Recognizing the requirement of the Medicare rules to insist on a signature by the physician that the amount paid by the tax fund will be accepted as payment in full, no matter how much the service rendered may have varied from the fee schedule, is an intrusion on the patient-physician relationship, and is a feature of all Socialized Medicine schemes, and

"Recognizing, that such a system of mandatory physician affidavits on the blank is not a practice of private health insurance, and

"Believing that Congress intended to provide a "health insurance" program for the dependents of the uniformed services similar to private industry, each such contract based on individual indemnity or service contracts as a state may desire,

"The Iberia Parish Medical Society

"Hereby petitions the House of Delegates through the Executive Committee, to enter into a 1958-59 contract only on the basis of an insurance type indemnity plan, without the requirement to swear signatorily to the third party that the amount allowed 'will be accepted in full for the services rendered' ". Resolution withdrawn.

Certification Boards: "WHEREAS, The Board certification groups when first organized were meant to improve standards and clarify competence of individuals as practitioners in various specialties; and

"WHEREAS, The act of certification has become stereotyped and is being used restrictively 'as a union card' in the practice of medicine in many instances; therefore be it

"RESOLVED, That the House of Delegates of the Louisiana State Medical Society request the House of Delegates of the American Medical Association to take cognizance of this fact; and be it further

"RESOLVED, That the House of Delegates of the American Medical Association request their representatives on the Joint Accreditation Commission for Hospitals to exercise their influence to direct that Board certification should not be used as a qualification for staff appointments in hospitals approved by the Commission."

AMENDMENTS

Constitution

Article IV, Section 2. (Associate Members). Delete "when endorsed by two active members in good standing" and insert "when approved by the Executive Committee" in re physicians in government service. Approved at 1957 Annual Meeting; final approval at this meeting.

Article IV, Section 2. (Associate Members.) Add "Associate Membership in a component society does not necessarily imply Associate Membership in the State Society." Approved; final action to be taken at 1959 meeting.

Other Action

Report of Louisiana State Board of Medical Examiners: Accepted; Drs. R. T. Lucas and Charles Anderson to be recommended to Governor for appointment in re expiration of term of Dr. Lucas.

Proposal in re development of a practical *program of case-finding in tuberculosis control*, approved.

Report in re *Medical Progress Exhibit* accepted and exhibit endorsed.

Proposed *fee schedule for Veterans Administration Hometown Care program* not approved; Secretary to advise VA that the House of Delegates disapproves such a fee schedule.

Eye screening program conducted under supervision of Eye, Ear, Nose and Throat doctors, with cooperation of Louisiana State Department of Health and the Board of Education and Welfare Department, approved.

Election of Officers, Delegate and Alternate to AMA and Committees

President-elect—Dr. W. Robyn Hardy, New Orleans

First Vice-President—Dr. O. B. Owens, Alexandria

Second Vice-President—Dr. Boni J. DeLaureal, New Orleans

Third Vice-President—Dr. James H. Eddy, Jr., Shreveport

Chairman, House of Delegates—Dr. Charles B. Odom, New Orleans

Vice-Chairman, House of Delegates—Dr. H. H. Hardy, Jr., Alexandria

Councilor, First District—Dr. Felix Planche, New Orleans

Councilor, Second District—Dr. J. E. Clayton, Norco

Councilor, Fourth District—Dr. Ralph H. Riggs, Shreveport

Councilor, Fifth District—Dr. Henson S. Coon, Monroe

Delegate to AMA (1959 and 1960)—Dr. P. H. Jones, New Orleans

Alternate Delegate to AMA (1959 and 1960)—Dr. Edwin L. Zander, New Orleans

Committee on Journal: Dr. Sam Hobson, New Orleans; Dr. J. E. Knighton, Shreveport

Committee on Medical Defense: Dr. J. Kelly Stone, New Orleans

Committee on Public Policy and Legislation: Dr. Joseph A. Sabatier, Jr., Baton Rouge, Chairman; Dr. Edwin L. Zander, New Orleans; Dr. J. E. Clayton, Norco; Dr. Leo J. Kerne, Thibodaux; Dr. C. E. Boyd, Shreveport; Dr. Henson S. Coon, Monroe; Dr. H. W. Richmond, Oakdale; Dr. F. P. Bordelon, Marksville.

Committee on Scientific Work: Dr. M. D. Hargrove, Shreveport; Dr. Sam Hobson, New Orleans

Future Annual Meetings

Dates and Places: 1959—New Orleans, May 4-6; 1960—Baton Rouge, May 2-4; 1961—New Orleans, May 8-10; 1962—Monroe (action taken in 1957 to hold meeting in Alexandria rescinded); 1963—New Orleans; 1964—Alexandria (no action on suggestion that meeting be held in Shreveport).

REPORT OF COMMITTEE ON MEDICAL DEFENSE

This has been another year of relatively little activity for this Committee. There were only three requests received from members for assistance in the defense of suits instituted for alleged malpractice. None of these has come to trial nor have they been otherwise settled.

One case from last year was settled by compromise without coming to trial.

C. B. ERICKSON, M. D., Chairman

REPORT OF COMMITTEE ON RESOLUTIONS

The members and guests who have participated in the 1958 Annual Meeting held in Shreveport May 5-7 are deeply appreciative of the interesting, instructive, and enjoyable activities furnished, and feel that special thanks should be extended the following individuals and groups who have made this possible; therefore, BE IT RESOLVED that the Louisiana State Medical Society express appreciation for assistance by the following:

Dr. K. B. Jones, President and

Dr. J. H. Eddy, Jr., Chairman, and personnel of Committee on Arrangements and all members of the Shreveport Medical Society, hosts to the meeting.

Rev. Lawrence Plumley who offered the invocation at the official opening meeting of the Society.

Hon. John Ford, Commissioner of Finance of the City of Shreveport for his cordial welcome to the City.

Dr. George F. Lull, Secretary and Assistant to the President of the American Medical Association for the annual oration presented at the opening meeting.

Fraternal Delegate, Dr. H. O. Padgett for greetings from the Texas State Medical Association.

The following out-of-state guests who participated in the scientific program:

Dr. W. Sterling Edwards, Birmingham, Alabama

Dr. Donald L. Paulson, Dallas, Texas

Dr. William B. Seaman, New York, New York

Dr. Stuart S. Stevenson, Pittsburgh, Pennsylvania

Dr. James T. Wortham, Little Rock, Arkansas

The Shreveport Chamber of Commerce for cooperation in connection with many phases of the meeting, and particularly for secretarial assistance and typewriters furnished for use at the registration desk.

The Shreveport Times and Journal as well as the press throughout the State for publicity prior to and during the time of the meeting.

Radio and TV stations throughout the State, and particularly the news and program directors of KTBS-TV and KSLA-TV for excellent cooperation in broadcasting specific phases of the meeting.

The Captain Shreve and Washington-Youree Hotels, headquarters for the meeting, for excellent services rendered members attending the meeting, as well as facilities for various sessions in connection with the meeting; also other hotels and motels in Shreveport for accommodations furnished.

The Catholic Physicians Guild of Shreveport for arranging a Memorial Mass in memory of those members of the Society who died during the past year.

Mr. Paul J. Perret and Mr. Paul R. Kalman, Jr.

who have rendered a most valuable service prior to and during the meeting as Public Relations Counselors in securing publicity for the meeting; also for report presented to House of Delegates.

Mr. Percy J. Landry, Jr., Legislative Consultant, who has continued to be most helpful to the medical profession, for his informative talk before the House of Delegates.

Scientific exhibitors whose exhibits added much interest to the meeting.

Pharmaceutical, surgical and other companies for their continued cooperation in having technical exhibits.

All companies which purchased space for advertising in the program.

The Shreveport Country Club and the Shreveport Skeet Club for facilities furnished for the golf tournament and skeet shoot.

Dr. Edwin H. Lawson, Secretary of the Louisiana State Board of Medical Examiners for his report submitted to the House of Delegates.

Officers and members of the Woman's Auxiliary who prepared an interesting program for the members of the auxiliary.

Dr. H. Ashton Thomas, who has served so capably during the past year as President of this organization.

The Past Presidents Advisory Council for report to the House of Delegates and their continued active interest in the organization.

Dr. W. Robyn Hardy, efficient Chairman of the House of Delegates.

Dr. C. Grenes Cole, Secretary-Treasurer, who has continued to render invaluable services to the organization.

Miss Annie Mae Shoemaker, Assistant Secretary-Treasurer, and the entire secretarial staff for their efficient handling of the details prior to and during the time of the meeting.

Special commendation is again expressed to Drs. Cecil W. Clark, S. E. Carter and George W. Dix and the Calcasieu Parish Medical Society for outstanding professional services rendered during Hurricane Audrey in June, 1957.

Recommendation

It is recommended that a copy of these resolutions be sent to each person and organization mentioned and also published in The Journal of the Louisiana State Medical Society.

R. E. GILLASPIE, M. D., Member
RALPH H. RIGGS, M. D., Member
SAM HOBSON, M. D., Chairman

IN MEMORIAM *

D. C. BRUMFIELD, M. D.

1870 - 1958

Dr. Brumfield was born in Tylertown, Mississippi, December 13, 1870 and died in a hospital in Baton Rouge on March 23, 1958.

He received his B.S. degree from Mississippi College in 1895 and his M.D. degree from the Tulane School of Medicine in 1900. Immediately after his graduation he entered general practice in Darrow, Ascension Parish, Louisiana where he remained until his death.

He became Health Officer of Ascension Parish in 1905. He was elected Coroner of Ascension Parish in 1912 and continued in the office until his death with the exception of one four year term.

He joined the Louisiana State Coroners Association in 1914 and was thereafter active in its affairs. He was elected President of the Association on May 13, 1948, and held the office until October 15, 1957 when ill health caused him to resign.

For more than half a century he was actively engaged in the general practice of medicine and was charged with the Public Health and Sanitation of the Parish. He was greatly loved and respected by the people of Ascension Parish.

In recognition of his interest in **Organized Medicine** he was selected as **Outstanding General Practitioner of Louisiana in 1954.**

He was typical of the country doctor, who endured without complaint the many discomforts of the early days.

With his passing the people of Ascension Parish have lost a valuable citizen; the Coroners Association a staunch supporter and Organized Medicine a most worthy member.

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* The above resolution was prepared and submitted by Dr. C. M. Horton, in accordance with request of the Louisiana State Coroner's Association.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

URGE ASPIRIN BE STUDIED AS ANTI-DIABETIC AGENT

There are sound reasons to believe that aspirin can "become a valuable anti-diabetic agent," the **Canadian Medical Association Journal** states in an editorial in its issue of March 1.

The journal notes that extended therapeutic trials have been conducted with the sulfonylurea compounds as oral anti-diabetic drugs, as well as continuing research with related compounds. Meanwhile, it adds, the medical profession may have "remained blissfully unconscious" of the availability of aspirin. This familiar and innocuous drug in common daily use is "capable of correcting hyperglycemia (excess of sugar in the blood), glycosuria (sugar in the urine) and ketosis (excessive formation of acetones) and causing the disappearance of the common associated symptoms of thirst, polyuria and pruritis."

The editorial points out that aspirin has been "known as an anti-diabetic agent for the past ten years", and has been under study by investigators in Glasgow. A review of the literature reveals "little to suggest that aspirin cannot become a valuable anti-diabetic agent."

ALCOHOL'S EFFECT ON COMMON COLD EXPLAINED

Alcoholic beverages are helpful in fighting the common cold—at least in the early stages.

This was reported by Dr. Noah D. Fabricant, Chicago otolaryngologist, in the March Archives of Otolaryngology, published by the American Medical Association.

Dr. Fabricant said, "Although consumption of alcohol is obviously not a cure for the common cold, its beneficial role in some persons can neither be minimized nor dismissed."

Alcohol has long been a popular remedy for warding off colds after chilling or exposure in inclement weather. It increases blood circulation, provides warmth and comfort, induces drowsiness, and promotes a desire to rest.

According to Dr. Fabricant, "Once acted upon, the decision to rest in bed can serve a most useful purpose. Rest in bed diminishes the severity of the common cold, limits its spread to others, and reduces the frequency of complications."

But alcohol is valuable in fighting a cold in still another way.

A cold is preceded by a lowering of the temperature in the nasal passages and a constriction of blood vessels within the nose. The passages then become dry and the defense against the cold is weakened. This paves the way for acute infection, the doctor said.

NEW ORAL IRON CAUSES FEW SIDE EFFECTS

A new oral iron preparation that produces few adverse gastrointestinal side effects was reported recently by four Illinois researchers.

One of the common problems associated with oral iron preparations—given for anemia caused by iron deficiency—is the development of severe gastrointestinal upsets, especially among children. These preparations are also potential poison to children if they are taken in large doses, the researchers said.

However, the new preparation, iron choline citrate (Ferrolip) appears to be safer than other preparations, they said in the April 5 Journal of the American Medical Association.

The iron has undergone the chemical process of chelation, in which the iron is bound into a form similar to that in which iron is held in the hemoglobin. "It is not surprising," therefore, that the presentation of iron to the system as a chelate complex minimizes adverse aspects of iron treatment.

The researchers gave iron citrate tablets to 131 patients suffering from iron deficiency anemia.

They were given between meals on an empty stomach in order to minimize any effect of food decreasing gastrointestinal symptoms. Few of the common symptoms, such as nausea, vomiting, abdominal cramps, diarrhea, and constipation, appeared.

FORM COUNCIL FOR HEALTH CARE OF THE AGED

The foundation was laid recently by some of the most important organizations in the health field to solve the problem of the health care of the aged.

For this purpose the American Dental Association, the American Hospital Association, the American Medical Association, and the American Nursing Home Association announced the establishment of the Joint Council to Improve the Health Care of the Aged.

Objectives of the council, the formation of which has been under consideration for some time by the sponsoring groups, were announced as:

"(1) To identify and analyze the health needs of the aged; (2) to appraise available health resources for the aged; and (3) to develop programs to foster the best possible health care for the aged regardless of their economic status."

The Joint Council to Improve the Health Care of the Aged is made up of three representatives of each sponsoring organization.

A.M.A. ANNUAL MEETING TO DRAW 15,000 DOCTORS

An estimated 15,000 physicians will attend the 107th annual meeting of the American Medical Association June 23-27 in San Francisco.

This convention—the largest medical meeting in the world—offers an opportunity for doctors to catch up on hundreds of aspects of rapidly-changing medical knowledge. Five hundred doctors will present scientific papers or participate in symposiums and discussion groups.

There will be 325 scientific exhibits in the San Francisco Civic Auditorium. In addition, 285 technical exhibits will be displayed in the new Plaza Exhibit Hall by pharmaceutical houses, medical equipment firms, and other manufacturers.

The House of Delegates, the A.M.A.'s policy-making body, will meet throughout the week in the Sheraton-Palace Hotel, headquarters for the meeting. Scientific sessions will be held in the auditorium, other rooms of the Civic Center, and some hotels.

Medical color television programs will emanate from San Francisco Hospital. A special event will be the premiere showing of a motion picture of traumatic neuroses made by the A.M.A. and the American Bar Association. The third in a series dealing with medicolegal problems, the movie will be shown Wednesday evening at the Sheraton-Palace.

Another special feature will be a 90-minute closed circuit television Grand Rounds, also on Wednesday evening. Part of it will cover the highlights of the meeting and the rest will deal with diabetes. The latter part will emanate from the University of California School of Medicine. It will be viewed by physicians in Boston, Chicago, Cleveland, Kalamazoo, Philadelphia, New York, and Syracuse.

The scientific session will open Monday afternoon with a panel discussion on the management of the severely injured patient. Tuesday morning's session will be a general review of the hazards of certain therapeutic agents. The winner of the Goldberger Award, given annually by the A.M.A. for outstanding achievement in the field of clinical nutrition, will speak at noon Tuesday.

In addition to awarding the Goldberger medal Monday at its opening session, the House of Delegates will also elect a physician to receive one of medicine's highest honors, the Distinguished Service Award.

Dr. David B. Allman, Atlantic City, N. J., retiring president of the A.M.A., and his successor, Dr. Gunnar A. Gundersen, LaCrosse, Wis., will address the opening session of the house. Dr. Gundersen will be inaugurated Tuesday evening.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

One of the highlights (and there were many) of the annual meeting at Shreveport of the Woman's Auxiliary to the Louisiana State Medical Society was the installation luncheon at East Ridge Country Club.

Mrs. T. H. Watkins presided at the installation and the officers seated were Mrs. Edward M. Harrell, Lafayette, president; Mrs. J. T. Willis, Alexandria, president-elect; Mrs. C. Prentice Gray, Jr., Monroe, first vice-president; Mrs. C. Elmo Boyd, Shreveport, second vice-president; Mrs. Willard Dowell, Baton Rouge, third vice-president; Mrs. Creighton Shute, Opelousas, fourth vice-president; Mrs. H. Wayne Richmond, Oakdale, recording secretary; Mrs. George M. Haik, New Orleans, treasurer; Mrs. William L. Zink, Lafayette, corresponding secretary; Mrs. Arthur D. Long, Baton Rouge, parliamentarian.

Toastmistress at the luncheon was Mrs. Harold J. Quinn. Mrs. Richard F. Stover, third vice-

president Woman's Auxiliary to the AMA, was the guest speaker, her topic being "What the Doctor's Wife Has a Right to Expect."

Mrs. Branch J. Aymond,
Press and Publicity.

ORLEANS PARISH

At a beautiful ceremony at the Orleans Club on Wednesday afternoon May 14, the new officers of the Woman's Auxiliary Orleans Parish Medical Society were installed by Mrs. Robert E. Rougelot, Jr., a past president.

Taking office were Mrs. Albert W. Habeeb president, Mrs. William J. Rein president elect; Mrs. J. Morgan Lyons first vice-president; Mrs. J. Theodore Brierre second vice-president; Mrs. Hyder F. Brewster third vice-president; Mrs. Charles B. Odom fourth vice-president; Mrs. Frank S. Oser, Jr. recording secretary; Mrs. J. Arthur White, Jr., treasurer; Mrs. Adrian B. Cairns corresponding secretary; Mrs. Monte Meyer, parliamentarian.

A program-tea followed the installation with the mothers and mothers-in-law of the members as guests of honor. The guest speaker Mr. James W. Barr, Director of the Better Business Bureau of New Orleans, was introduced by Mrs. Charles Farris, Jr.

Receiving in the drawing room were Mesdames Eugene H. Countiss, A. B. Paterson, Albert W. Habeeb, William J. Rein, J. Morgan Lyons, J. Theodore Brierre, Hyder F. Brewster, Charles B. Odom, Frank S. Oser, Jr., and J. Arthur White, Jr.

Alternating in presiding at the tea and coffee table were Mesdames V. W. VanLue, Marion B. Odom, and F. C. Gandolfo, Jr.

Hostesses assisting in the dining room were Mmes. Fred O. Brumfield, W. Kohlmann Reed, James W. Warren, John Tanner, Henry K. Threefoot, Simon V. Ward, Jr., F. H. Vallette, William A. Wagner, Walter J. Trautman, Jr., Andre C. Touzet, Joseph A. Vella, Gilbert C. Tomskey, Hyman C. Tolmas, Sidney L. Tiblier, Jr., Albert H. St. Raymond, Jr., and Philip M. Tiller, Jr.

Mrs. Branch J. Aymond,
Publicity Chairman.

BOOK REVIEWS

Textbook of Pathology with Clinical Applications; by Stanley L. Robbins, M.D., Philadelphia, Pa., W. B. Saunders Company, 1957, pp. 135. Price $18.00.

This textbook of Pathology is a tribute to the productivity of the author, who personally has written all but five of the thirty-two chapters of the book. In his preface, the author states that this textbook was written for students and clinicians. Certainly, these two groups will find this book very valuable in its organization, content, and readability. The organization which presents systemic diseases in their entirety is very helpful and logical. As to content, the book includes a wide coverage of pathologic conditions and presents these in adequate detail. In fact, the completeness of coverage, both as to variety of conditions and completeness of detail, is sufficient to make this book very valuable to practicing pathologists, as well as students and clinicians. In this regard, Robbins' textbook falls into the category of a reference book which should be of value for many years, in spite of the rapid and important changes which are occurring in all fields of medicine.

Emphasis is placed upon clinical correlation, which also is of importance to students, clinicians, and practicing pathologists. The book is printed in double-column method which enhances the readability. The illustrations are quite numerous and are of very high quality.

W. H. Harris, Jr., M.D.

PUBLICATIONS RECEIVED

Grune & Stratton, Inc., N. Y.: Psychoprophylactic Preparation for Painless Childbirth, by Isidore Bonstein, M. D.; Regional Ileitis, by Burrill B. Crohn, M. D., and Harry Yarnis, M. D. (2nd edit.); Proceedings of the Sixth International Congress of the International Society of Hematology, edited by Publications Committee, A. Richardson Jones, M. D., Chairman.

Paul B. Hoeber, Inc., N. Y.: Clinical Obstetrics and Gynecology, Volume 1, Number 1: Medical Problems in Pregnancy, edited by Curtis J. Lund, M. D., and Management of Endocrine Problems, edited by Allen C. Barnes, M. D.

Little, Brown & Company, Boston: Clinical Enzymology, edited by Gustav J. Martin, Sc.D.

The C. V. Mosby Co., St. Louis: Drugs of Choice, 1958-1959, edited by Walter Modell, M. D.



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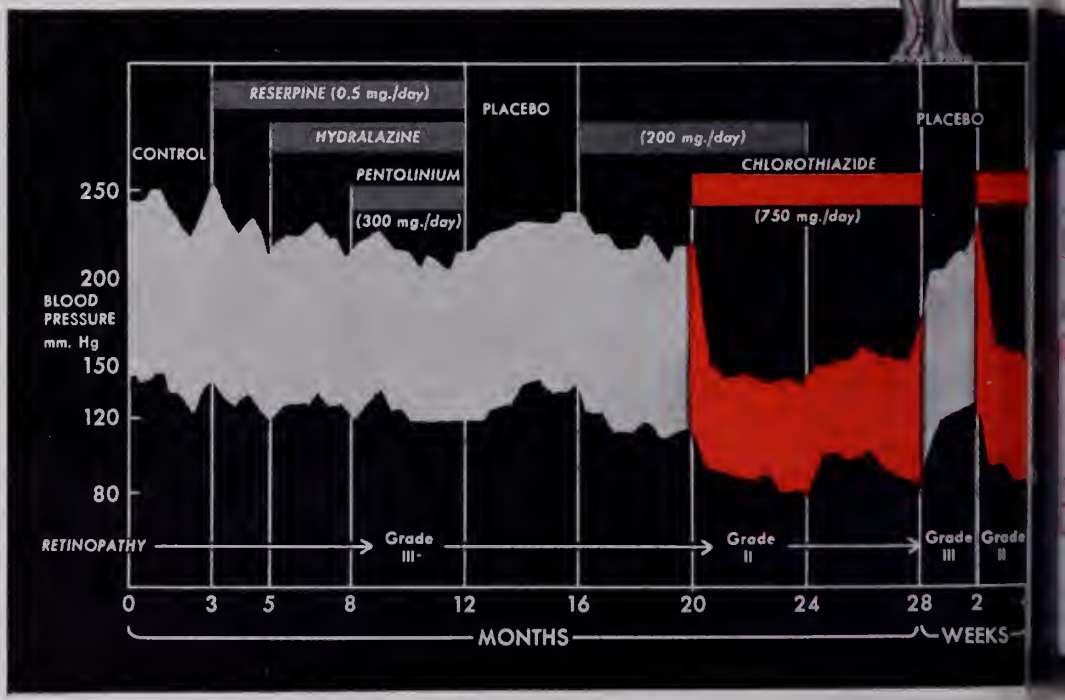
Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

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Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

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In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension," Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8: 1, September, 1

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1. Russek, H. I.: Postgrad. Med. *19*:562 (June) 1956.

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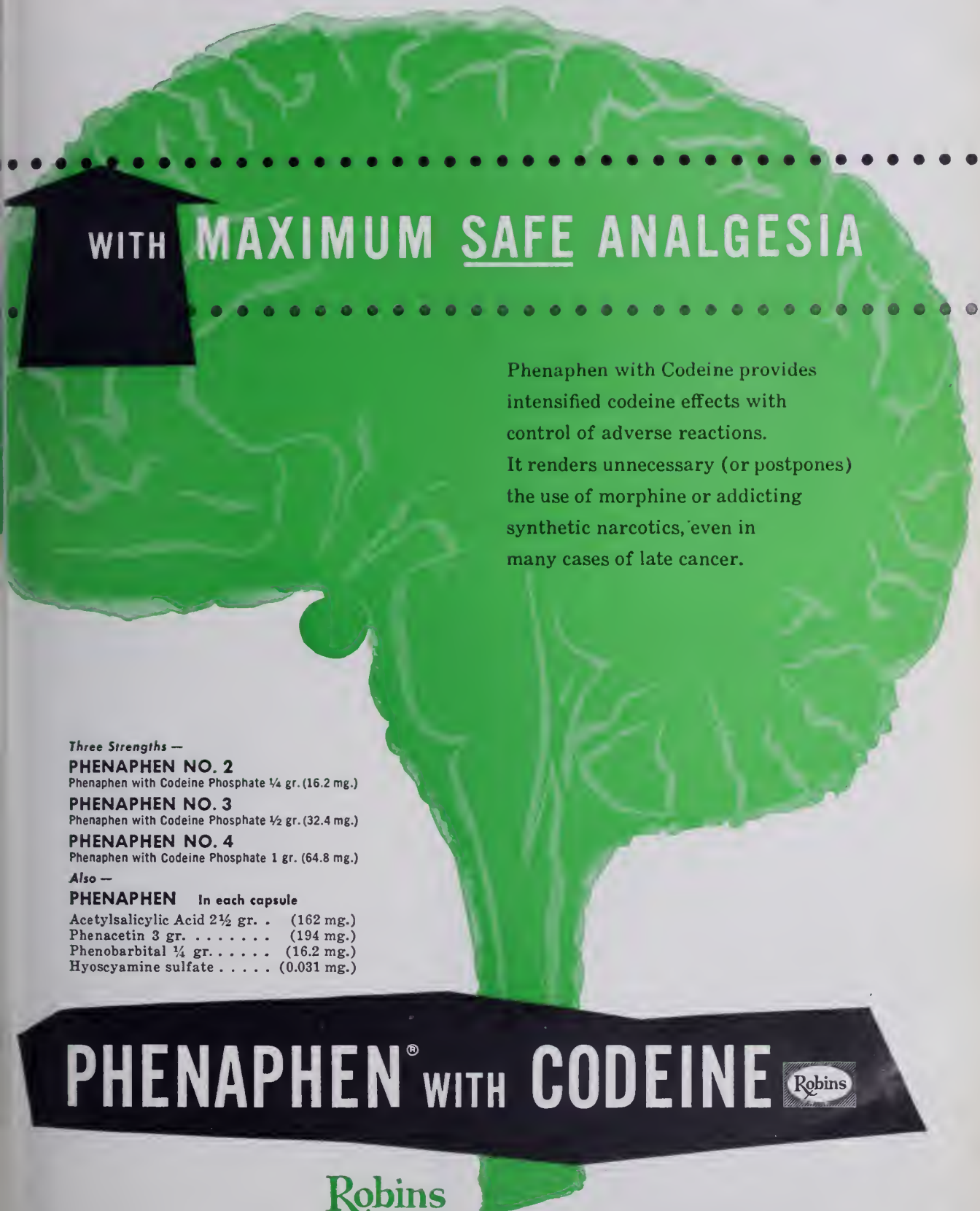
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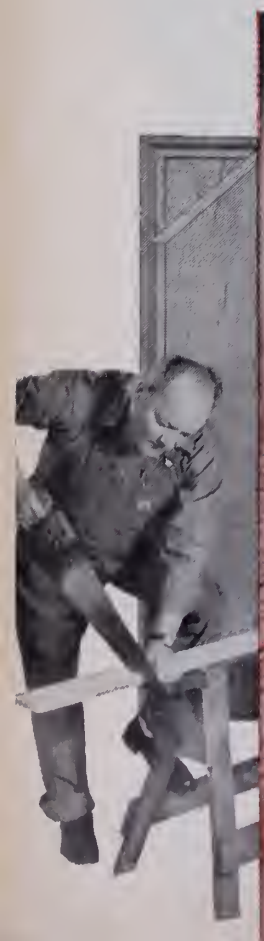
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1. Comroe's Arthritis: Hollander, J. L., p. 149 (Fifth Edition, Lea & Febiger, Philadelphia, Pa. 1953).
2. Merck Manual: Lyght, C. E., p. 1102 (Ninth Edition, Merck & Co., Inc., Rahway, N. J. 1956).

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Riseman, J. E. F., Altman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites in the Treatment of Angina Pectoris, Circulation (Jan.) 1958.

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References: 1. Grieble, H. C. and Jackson, G. G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958. 2. Editorial *New England J. Med.* 258:48-49,1958. 3. Jones, W. F., Jr. and Finland, M., Sulfamethoxypyridazine and Sulfachloropyridazine. *Ann. New York Acad. Sc.* 60:473-483, 1957.

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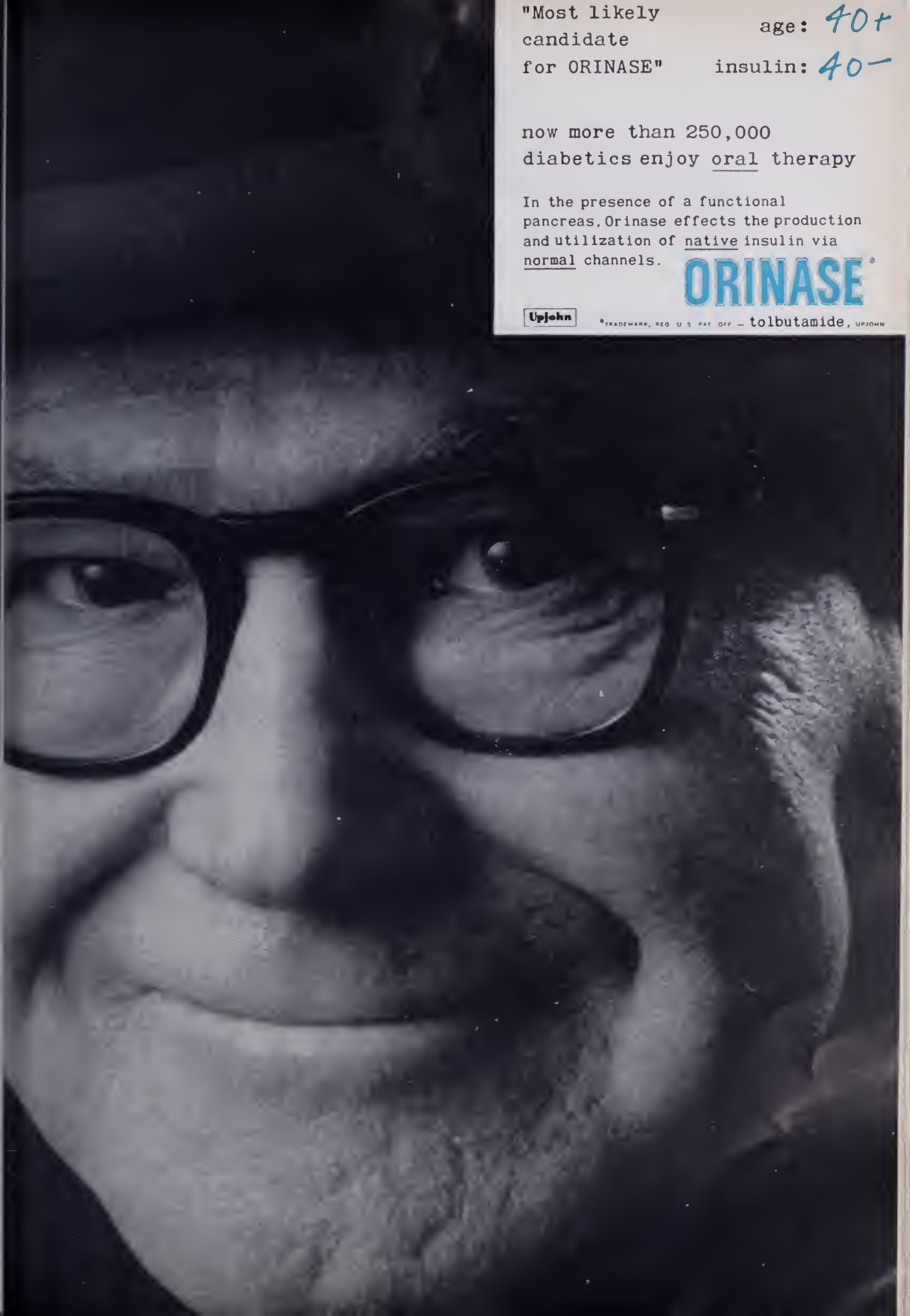
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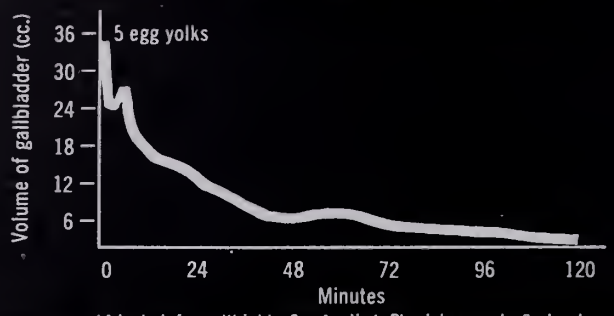
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Source—Lichtman, S. S.: Diseases of the Liver, Gallbladder and Bile Ducts, ed. 3, Philadelphia, Lea & Febiger, 1953, vol. 2, p. 1177.

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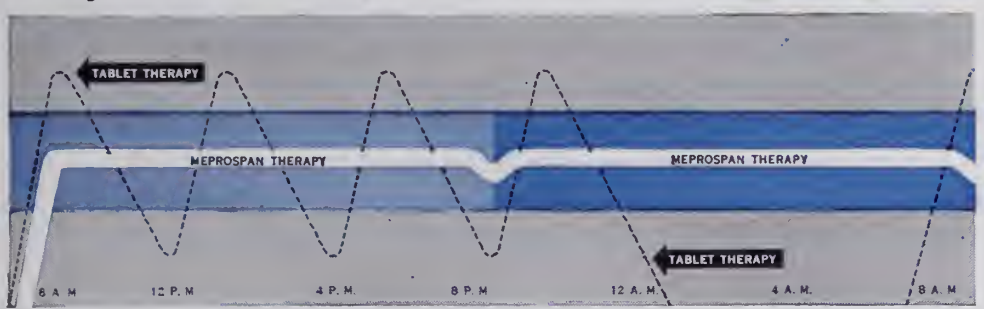
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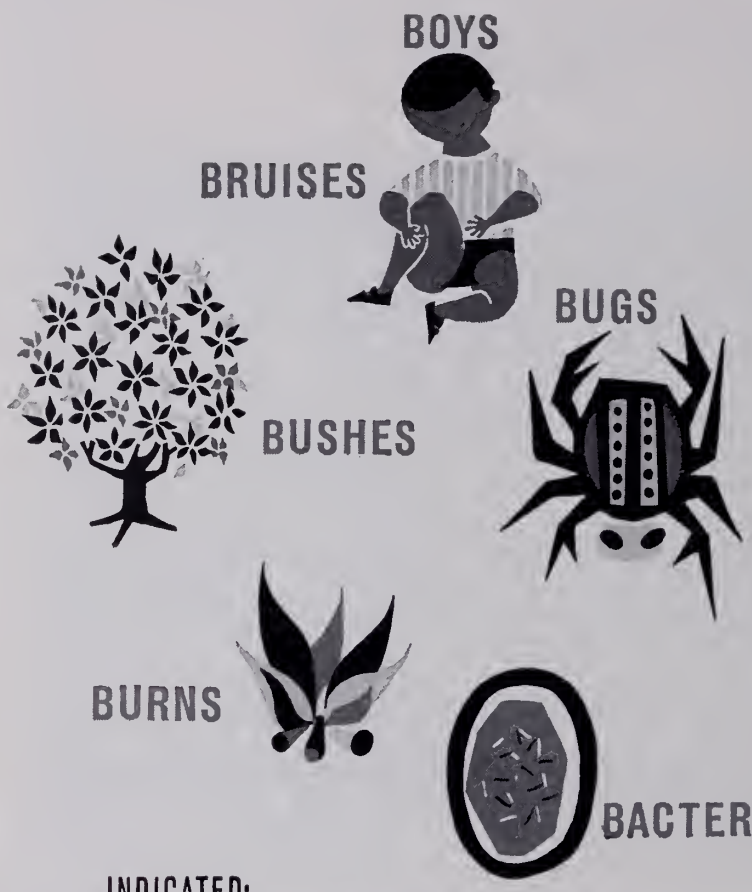
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*Howell, O. M., Jr.: Am. Pract. & Digest Treat. 8:1928, 1957.

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1. Grossmann, E. E., and Lehman, R. H.: Am. J. Ophth. 42:121, 1956.

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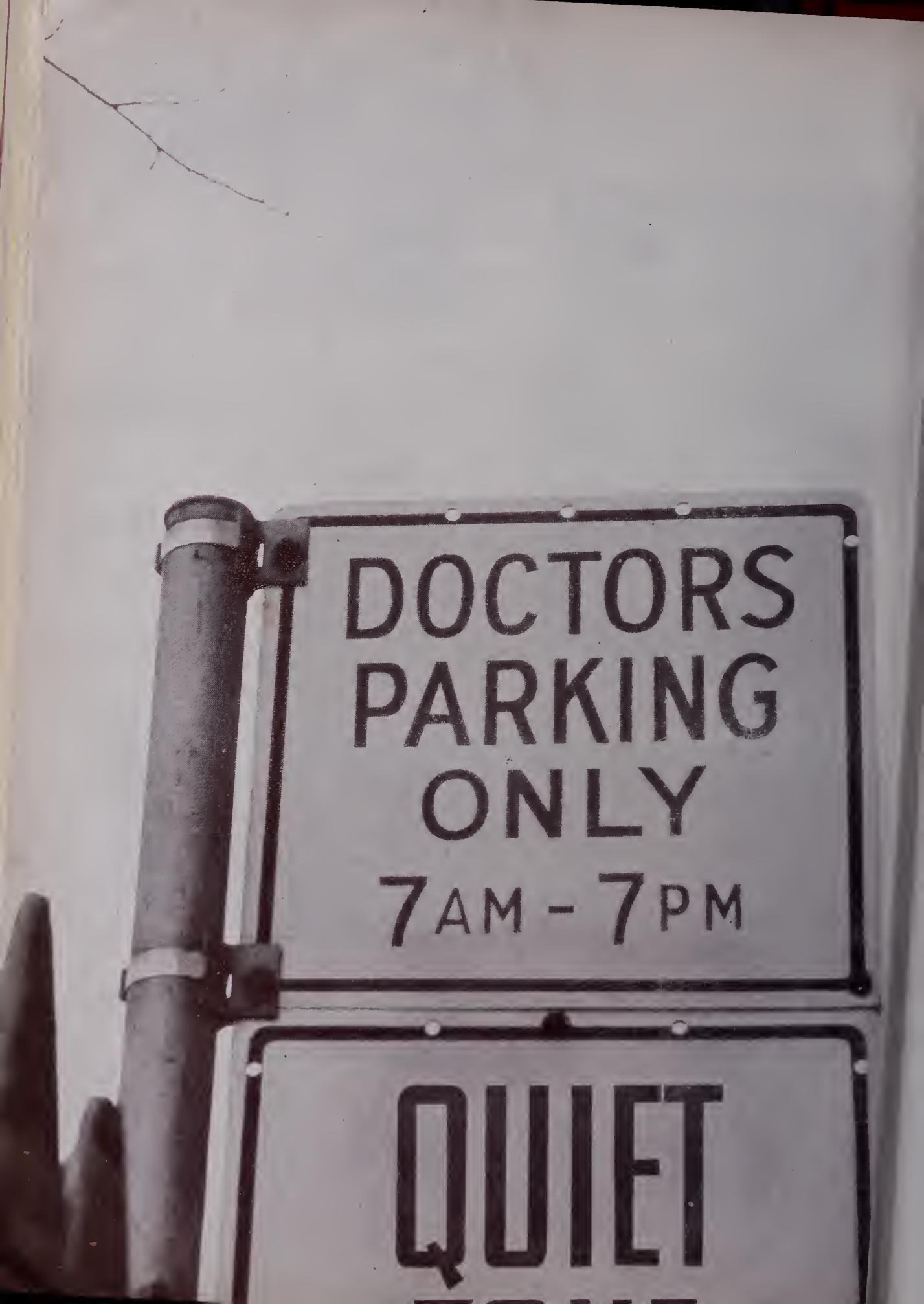
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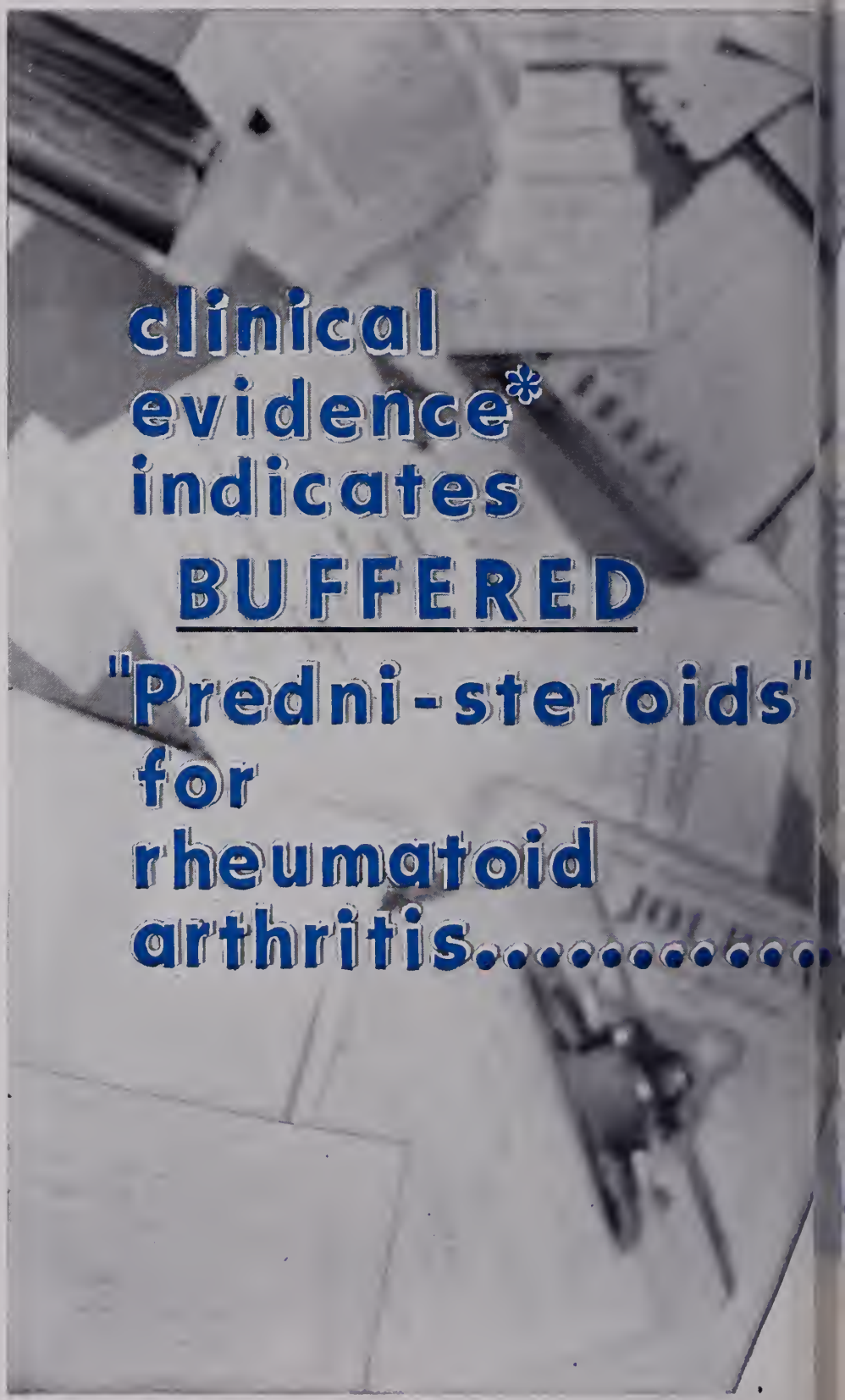
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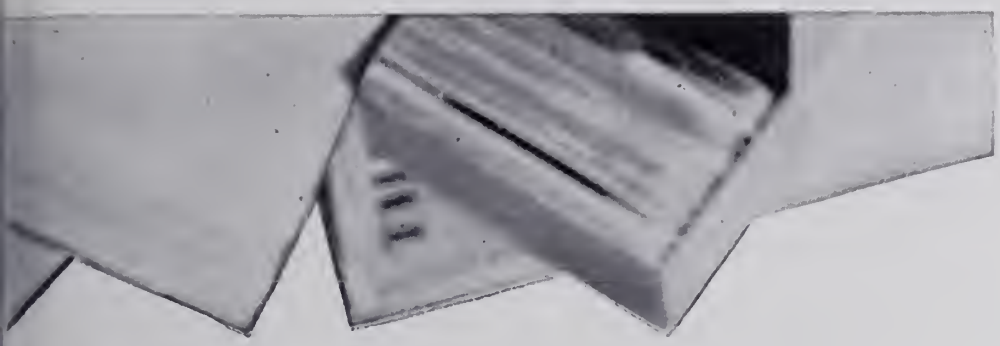
(1) Hagedorn, A. B.: Proc. Staff Meet. Mayo Clin. 32:705 (Dec. 11) 1957.
(2) Best, W. R.; Louis, J., and Limarzi, L. R.: M. Clin. North America (Jan.) 1958, p. 3.

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ets."—Dordick, J. R. *et al.*:
ite J. Med. 57:2049 (June
7.

*"It is our growing conviction that all patients receiving oral steroids should take each dose after food or with adequate buffering with aluminum or magnesium hydroxide preparations."—Sigler, J. W. and Ensign, D. C.: J. Kentucky State M. A. 54:771 (Sept.) 1956.

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ROBAXIN BENEFICIAL IN 95.6% OF CS

CONDITION	PA N
STUDY 1[1]	
Skeletal muscle spasm secondary to acute trauma	1
STUDY 2[2]	
Herniated disc	
Ligamentous strains	
Torticollis	
Whiplash injury	
Contusions, fractures, and muscle soreness due to accidents	
STUDY 3[5]	
Herniated disc	
Acute fibromyositis	
Torticollis	
STUDY 4[4]	
Pyramidal tract and acute myalgic disorders	
TOTALS	11



'E SKELETAL MUSCLE SPASM[1,2,5,6]

	RESPONSE		
	moderate	*slight*	*none*
ed"	6	1	—
ıced"	13	—	1
	4	—	—
	—	—	—
	1	—	—
	2	—	—
ent"	2	—	—
	—	—	—
	—	1	—
ant"	—	2	1
	28	4	2
%)	(20.3%)		

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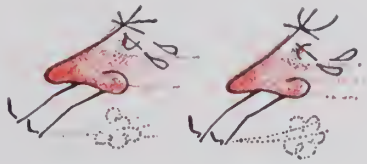
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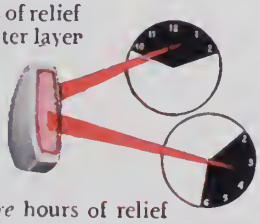
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1. Weinberg, A., and Werner, W. E. F.: Am. Pract. & Digest Treat. *6*:580 (April) 1955.
2. Codling, J. W., and Lowden, R. J.: Northwest Med. *57*:331 (March) 1958.

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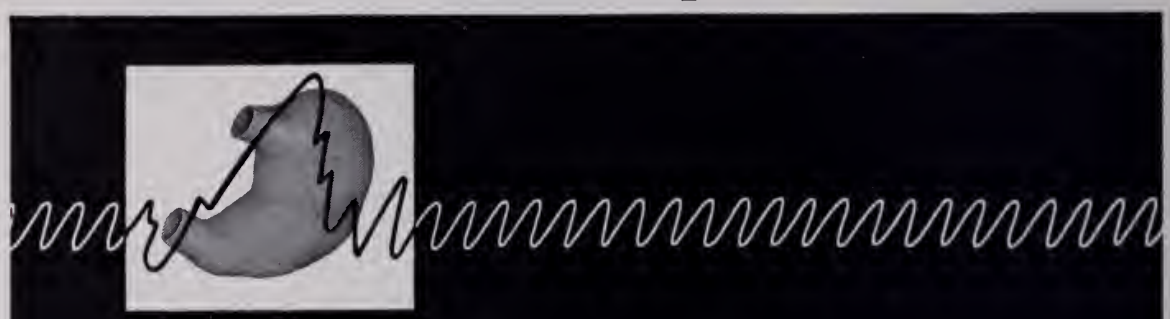
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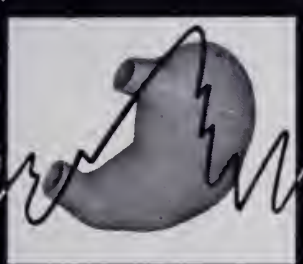
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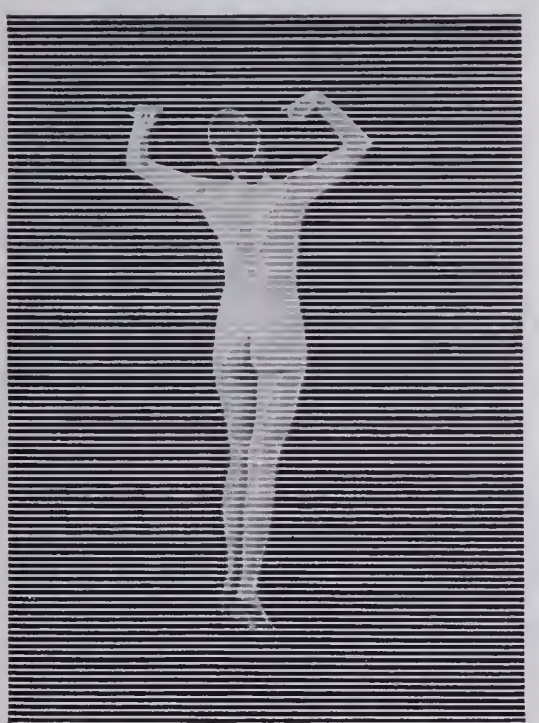
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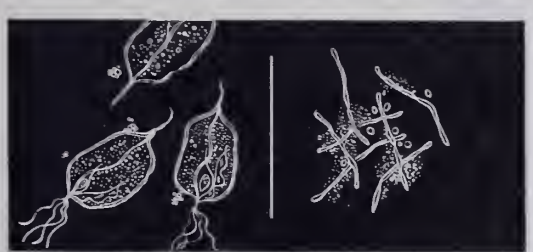
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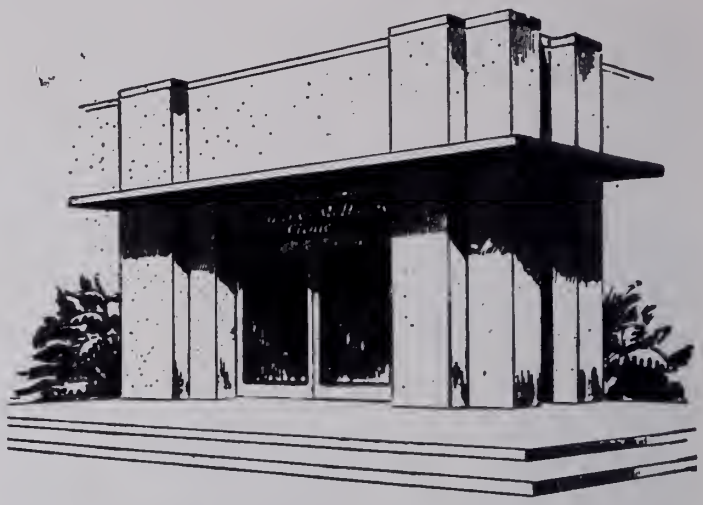
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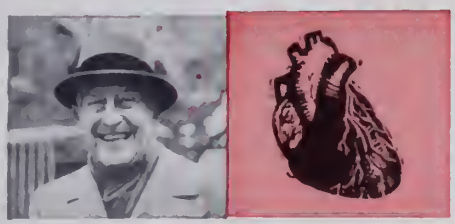
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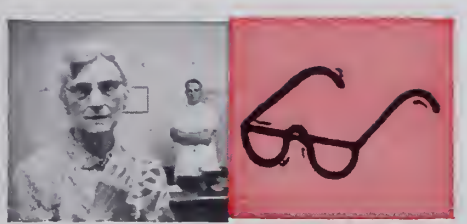
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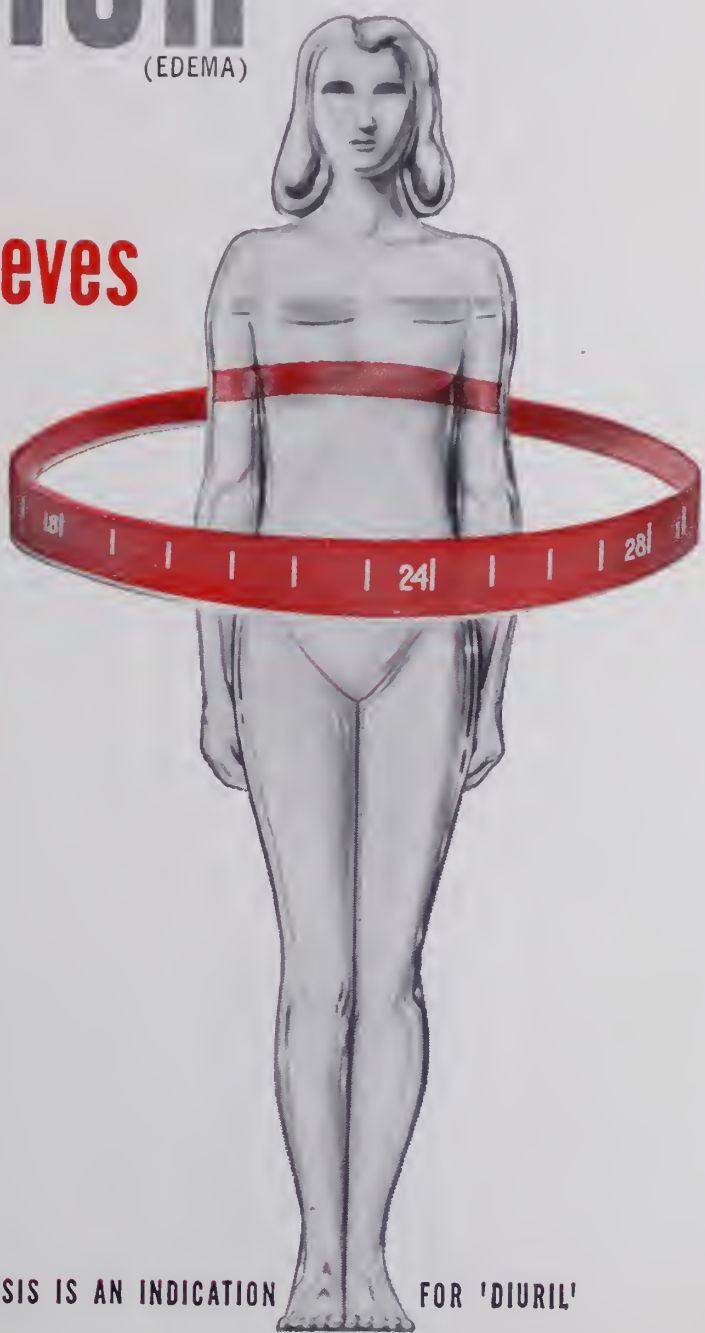
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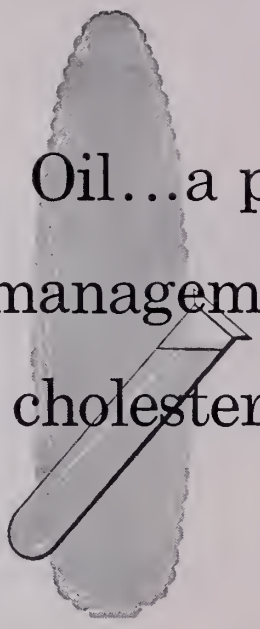
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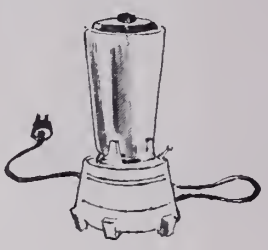
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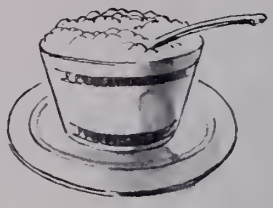
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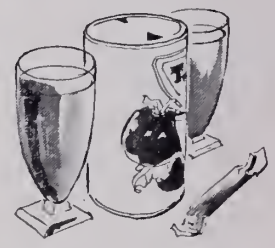
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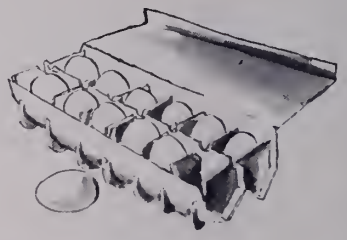
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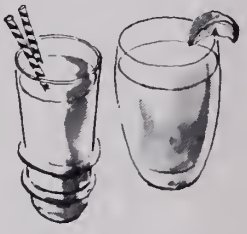
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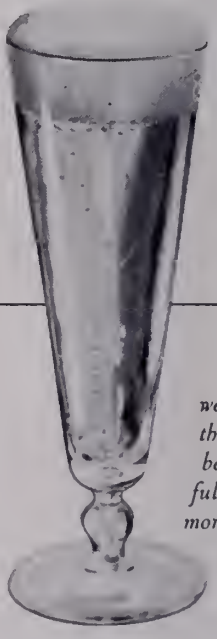
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Vol. 110, No. 7

JULY, 1958

Published Monthly
1430 Tulane Avenue, New Orleans 12, La.

HOW GOOD IS TODAY'S MEDICAL CARE? *

GEORGE F. LULL, M. D.†

Chicago

The United States is the healthiest large nation in the world.

The medical profession, in cooperation with chemists, dentists, nurses, pharmacists, sanitary engineers, hospitals, and other public health personnel of America, has established the finest system of health and medical care in the world. More progress has been made in the field of medical science than in any other single field of endeavor. America has more physicians, nurses, dentists, hospitals, and allied health personnel than most other nations.

And, all this has been made possible through American free enterprise.

Most people take their good health for granted. It is only human nature to do so. When illness strikes, instinctive forces automatically lead the individual to the telephone to contact his physician. The individual rarely takes the time to stop and think about the months, years, and centuries of scientific research and training that men of science have contributed toward making and keeping him healthy.

The doctor has always held a position of unquestioned leadership, respect and admiration in the community, and the tremendous changes in civilization have not modified his position. They have, if anything, complicated his place in society, for today the physician has to think and act in terms of the community and its health needs, rather than in terms of a single ill person.

Today, there are more physicians in the continental United States than ever before. At the end of 1956, there were 229,876 doctors in this nation, representing a net increase of 20,836 since 1950; there is an average of one doctor for every 740 persons. Many people, especially those in some rural areas, still complain of a doctor shortage. Granted there are some areas where a doctor is needed, in the majority of cases there are sufficient doctors and health facilities available to render proper service to the public. Today's modern roads and easy transportation and modern communication systems put the physician, hospital and health facilities of larger communities at the disposal of everyone in the nation within a reasonable length of time.

The success of rural communities in obtaining a doctor for their individual localities rests to some extent on their ability to support him. The steady migration of a large segment of rural population to urban areas, the gradual elimination of the small town trading center, and the lack of cooperation on the part of the community to assume its rightful responsibility of providing proper medical, social and educational facilities have

* Presented at open meeting of the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, Shreveport, May 4, 1958.

† Secretary and Assistant to President, American Medical Association.

forced many doctors to leave small town practice.

However, the doctor of today in general and the country doctor specifically is able to provide better medical service over a wider area, with the resultant improvement in the health of America. This has been brought about by the doctor's use of the new and improved medical techniques, modern equipment, new and improved drugs, rapid transportation, and modern communication.

Citizens today are acquainted with the meaning and value of good health—not merely good physical health, but good health of the body, mind and spirit.

Just how healthy is America? Well, the 1956 annual report of the United States Public Health Service showed that the health status of the average American is at its highest level. The death rate for 1956 was 9.4 per 1,000 population. When the death rates over a period of years are compared, the age-adjusted rate is often used because it makes allowance for the changes in age composition of the population. In the U. S., between 1940 and 1956, the proportion of people 65 years and over and the proportion of children under 5 years have both increased rapidly, while the proportion of the population between ages 15 and 44 has decreased. The age-adjusted rate for a given year is the death rate which would have resulted if the mortality of each age group during the given year had been experienced by a population with a standard age distribution. Taking as the standard the age distribution of the 1940 population, the age-adjusted death rate was 7.7 in 1956 and 10.8 in 1940. The percentage decrease is 28.7%. The average life expectancy at birth has risen to 69.5 years, compared to a life expectancy at birth of 47 years at the turn of the century.

Last year infant and maternal mortality figures dropped to the lowest point ever recorded in the United States, despite an increase in births. Infant mortality has fallen from 100 per 1,000 live births in 1915 to 26 per 1,000 live births in 1956, when an estimated 4,168,000 children were born. An American mother today has better than 999 chances out of 1,000 to come safely through childbirth.

Perhaps the most significant proof of health progress during recent years is the increase in the number of Americans over 65 years of age. While the entire population of the United States has doubled since 1900—from 75,000,000 to over 150,000,000—the population of persons over 65 years of age has quadrupled—from 3,000,000 to 12,000,000.

The death rate from tuberculosis dropped to 8.3 per 100,000 population in 1956, compared with 22 in 1951.

However, with the increased number of persons living longer, chronic diseases are taking a greater toll of lives. Diseases of the heart and blood vessels and cancer caused two-thirds of all deaths in 1950.

The advance toward a longer and healthier life has been brought about by improved health and medical services, medical research and expanded hospital facilities.

American hospital service reached an all-time high last year. The guide issue of hospitals (American Hospital Association, August 1957) states that 22,089,719 Americans were admitted to hospitals in 1956. Average length of stay in short-term hospitals has however decreased from 40 days in 1900 to 14 days in 1934 to 8.1 days in 1947 to 7.7 days in 1956. Expense per patient day however rose from $10.04 in 1947 to $24.99 in 1956 and the average cost per stay rose from $88.35 in 1946 to $187.43 in 1956.

Many people wonder just who is paying for all these advances in science, and the improved increased medical care the public expects and receives. The answer is simple — private enterprise, the public, government, and the medical care team. All contribute voluntarily toward various funds for medical research, education and the betterment of the nation's health and welfare.

Voluntary health insurance against the costs of hospital and medical care has been developing at a phenomenal rate during the past decade. The public and

the medical profession both are eager to develop this socially useful mechanism. The medical profession is increasing its cooperative efforts with labor, management and community leaders. Voluntary insurance is covering not only larger numbers of people, but is providing more complete coverage as experience proves the soundness of such extension. No movement in modern medicine has been so remarkable as the awakening of a highly individualistic profession to a consciousness of its social responsibility.

Much too much emphasis has been placed on the payment of the doctor's bill. This represents only a minute portion of the problem of the cost of medical care. Chapter one, section one of the Principles of Medical Ethics states that "the prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration." And, United States government statistics show that the doctor in 1956 received only 27 cents of the individual's medical dollar—five cents less than the doctor received in 1935-1939.

Enrollment gains under all forms of voluntary health insurance have made a significant contribution toward helping to meet the unexpected costs of illness. At the end of 1956, 123,000,000 persons in the continental United States had some form of hospital expense insurance—an increase from 86,000,000 in 1951 — approximately 107,000,000 persons more than in 1941. Some 110,000,000 persons were carrying surgical expense benefit insurance at the close of 1956, which is about 107,000,000 more than in 1941. The 70,000,000 persons who were protected against the expenses of medical care above and beyond those incident to surgery in 1951 represented an increase of 67,000,000 since 1941.

One of the most important steps to be taken by an individual to assure himself that he will obtain the best in medical care is the selection of a family physician before an emergency arises. It is most desirable for each family to have a family physician, whether the physician practices alone or with a group of his colleagues. The practice of medicine is no longer just that of treating the sick, but also that of preventive medicine. Only by an attachment to a family physician will people have the advantages of positive health supervision and of the early and comparatively inexpensive detection of serious illness when it can be most successfully treated.

It is relatively simple to select a family physician. Before a final decision is made, an individual should discuss with the physician his costs and services, and whether or not he will make home calls. A doctor is not a friend if he demands to see the color of money before he offers treatment, if a person is really sick and the doctor refuses to come, if he charges more than the individual can pay and does not discuss fees and services, or if the doctor operates unnecessarily. Such practices are contrary to the Code of Medical Ethics and should not be tolerated.

To insure good health for the entire community, local and state governments must cooperate in making health and medical services available to those who cannot afford them. Access to laboratory and x-ray facilities, and tests for tuberculosis, syphilis and other contagious diseases should be within the reach of every individual in the community who cannot afford these safeguards himself.

Many of the chronically ill are in their present condition because of ignorance, willful neglect or failure to observe and practice even the most elementary principles of hygienic living. Their condition is not due to failures on the part of the medical profession. It is not enough to concentrate on repairing the damage already done to health—it is necessary to prevent new or further damage. This job cannot be done by the medical profession alone. It must be done by every individual in every community. Prevention of disease by developing sound health habits on an individual basis should be the foundation of every community's and every individual's health program.

The splendid record of American medi-

cine is a long one. But, there is another side of American medicine about which most people do not know—that of organized medicine. During the past few years, American medicine has championed the cause of freedom through its opposition to government control of our health facilities and medical manpower. Medicine regrets that it became necessary to enter into such political controversy, but in the interest of preserving the high quality of health care now available, it had no other alternative. More than 10,000 civic, farm, and professional organizations have joined with medicine in opposing compulsory health insurance. The socialization of medicine would be the opening wedge toward the complete socialization of our economy.

Organized medicine has been one of the driving forces behind the campaign to raise the standards of medical education in the United States. In 1900, for example, there were over 200 medical schools in this country, many of which were little more than diploma mills. Today, organized medicine has established standards of instruction and set up a program of approving medical schools and hospitals for intern and residency training. There are now 85 approved medical schools in the country, with an enrollment of over 29,000 students, the highest in history.

It is not generally recognized how great a contribution organized medicine is making to public welfare in disciplining its own members for unprofessional conduct. Some people have said the medical profession is unwilling to discipline its own members, while others have commented that the profession is doing the job, but is taking too much time to do it. My opinion on the subject is that physicians cannot tolerate unprofessional conduct and that they are increasingly willing to assume responsibility for disciplinary action when just cause is shown.

Physicians realize that there is bad and good among any large group of persons, and that the best and quickest way to halt criticism is to face it openly and squarely. Outstanding progress is being made in the establishment of professional conduct committees, where complaints concerning the professional conduct and ethical deportment of individual physicians are heard and investigated, and amicable adjustments attempted. Today all state medical societies, including the District of Columbia and Hawaii, either have created special committees or have specifically delegated the duty of hearing complaints from the public to existing committees.

Another way organized medicine has helped to improve medical care is by the establishment of emergency medical call systems. At the present time, approximately 80 per cent of the country's large medical societies have such plans. In 1948, only about 60 medical societies reported having such a formal plan for handling emergency and night calls; now there are 549 such systems in operation that we know of. The development of an efficient emergency call plan is an important step any medical society can and should take toward assuring the public that medical care will be available when needed.

While every county or city has real emergency cases, not every county medical society needs a formal or organized program for handling emergencies. Those counties where there are few residents and few physicians may effectively rely on the normal physician-patient relationships in emergencies. In a heavily populated county, on the other hand, the greater number of physicians not only makes it difficult for the patient to check through the whole list to find one available, but also makes it difficult for physicians to make any informal arrangements for one of their number to be on call at all times.

Public abuse or neglect of any medical service program can cause its failure. Citizens have a responsibility in their local emergency call plan, namely, to use the service only when necessary. Emergency call plans are for the benefit of the public and require their cooperation.

How good is today's medical care? The only indicators are such factors as the

decreasing death rate, the increasing live birth rate, the increasing longevity, the conquering of diseases, the furthering of medical research and education, and the establishing of plans to aid persons in meeting the costs of medical care.

Admittedly, there are still some things wrong with medicine. But, there is no one individual or profession that can say he or it is perfect. We are continually striving to iron out our difficulties, correct our faults and further improve the nation's health and welfare. We have come a long way toward making our nation one of the world's healthiest nations. We will continue to go forward.

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URINARY TRACT INFECTION IN CHILDHOOD * †

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The urinary tract is probably the most common site of infection, with the exception of the respiratory tract, in infants and young children. Signs and symptoms are often so insidious that such infection was not even well recognized by clinicians until some sixty years ago and the diagnosis is still all too frequently missed. It is a serious disease, with a possible *ultimate* mortality estimated at from 2 to 20 per cent. Urologists do not see most cases and possibly do not recognize its frequency. Urinary tract infection, however, constitutes 1 per cent of hospital pediatric practice and is a very common cause of acute, febrile illness in childhood. Proper diagnosis has assumed more importance than ever, now that modern antibiotics and better methods of treating obstruction are available. In general, this will require hospitalization of the patient.

Urinary tract infection has been labeled as "pyelitis". This is unfortunate because the disease is usually generalized throughout the urinary tract and not confined to the renal pelvis. "Pyuria" is an equally unfortunate term because there may be no pus cells in the voided urine in the presence of severe renal infection.

ETIOLOGY

Eighty per cent of urinary tract infections in childhood are caused by gram negative bacilli. They probably invade by ascending the urethra and it is well known that such infections are six times more common in girls with their short urethras (1.5 cm. at birth, only 3 cm. at puberty). The acute form of the disease, furthermore, is most frequently seen in children under three years—in the diaper age. (It rarely occurs in the newborn period but the route of infection here is usually hematogenous and both sexes are equally affected.) The organisms we have most often found, in order of incidence, have been *E. coli, Proteus, Aerobacter aerogenes* and *Pseudomonas aeruginosa (pyocyaneus).*

Fifteen per cent of infections are coccal. The route of invasion is usually hematogenous and the pathogen is usually the staphylococcus. More rarely, we have found *H. streptococci* and most rarely, fortunately, *Streptococcus fecalis.* Approximately one third of the coccal infections have been complicated by secondary bacillary invasion. In the presence of a coccal infection, probably because it is hematogenous, we have learned to look for an accompanying septicemia or for focal infection in such forms as osteomyelitis or furuncles. In addition, we have begun to worry about antibiotic-resistant strains of staphylococci, especially in the debilitated patient who may pick these up while in the hospital and develop a urinary tract infection on top of his original illness.

Mixed pathogens, *E. coli* and *pyocyaneus* for instance, are a hazard when the

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urinary tract infection is chronic, and should always suggest the possibility of an obstructive lesion.

Tuberculous infection has been very rare in our experience but it should be suspected in the presence of chronic pyuria, acid urine, hematuria and sterile cultures—and a positive tuberculin test. Remember, however, that the smegma bacillus resembles the tubercle bacillus; that many cultures are sterile because antibiotic treatment has temporarily suppressed the pathogen; and, finally, that a dehydrated, vomiting, ketotic child may void acid urine in spite of the fact that many nontuberculous infections tend to create an alkaline urine.

Systemic resistance seems important in etiology, and urinary tract infection is not an uncommon complication of infections elsewhere in the body: the patient may have a coccal infection of the respiratory tract and bacilli in the urine. It is important to watch for such a complication during the course of other, diagnosed diseases, especially if there is an unexplained rise in the temperature or white blood count.

PATHOLOGY

The entire urinary tract is usually infected although symptoms of cystitis are rare in young children. A unilateral kidney infection almost always indicates high obstruction. The kidneys are swollen and may be palpable and tender. (Remember, however, that the kidneys of normal infants are often palpable and are tender if palpated.) There are hemorrhages, pus cells, and interstitial abscesses in the parenchyma and these may produce red cells, white cells and all varieties of casts in the urine. It is here, in the renal parenchyma, that infection wreaks its worst havoc and it is here that a focus of chronic infection may become established. If this chronic infection, with or without demonstrable obstruction, is not obliterated, pyonephrosis may eventually appear (pus alone can obstruct). Finally, even though pus and bacteria are gone, all that remains is a scarred, shrunken, lobulated kidney. The patient appears, clinically, to have chronic glomerulonephritis — and he dies, with growth and time, of renal failure, perhaps years after the original, neglected infection has been forgotten.

SIGNS AND SYMPTOMS

The signs and symptoms of urinary tract infection are vague and variable, which explains, if it does not justify, many missed diagnoses. Suspect it especially with acute illness in girls of diaper age. Suspect it, as a matter of fact, with any undiagnosed febrile illness, with unexplained malnutrition or failure to grow, with unexplained anemia, abdominal pain or gastrointestinal disturbance. Think of it even in the first month of life when there may be no fever.

Often the onset is sudden, with high fever. The highest fevers may accompany renal, cortical abcesses and the urine, at this time, may be normal. Sometimes, the onset is insidious, with moderate fever and irritability. Sometimes, the fever fluctuates widely and may even remit for a day or two. Pallor, more severe than the hemoglobin level explains, may be striking. Vomiting and diarrhea, especially in infants, may be marked and persistent. An attack may be heralded by convulsions and meningismus, simulating meningitis, again especially in infants.

Older children may announce and localize the disease with frequency, dysuria, and vesical discomfort, or with costovertebral angle tenderness—but do not count on it. Perinephric abscess, a complication usually of hematogenous infection, should be suspected if the skin overlying the kidney region is red or edematous, or if abdominal pain is referred to the groin or the thigh. Rarely, as the kidney swells within its capsule and compromises its own blood supply, hypertension and edema may appear; in this situation, and with red blood cells in the urine, acute glomerulonephritis may be erroneously diagnosed.

Do not overlook other diseases: appendicitis may cause pus in the urine; pyloric stenosis with its dehydration may cause albuminuria, casts and occasional pus cells in the urine. But remember that urinary

tract infection may mimic many diseases and there are often no local or specific signs or symptoms. Any child, with unexplained illness, demands a careful examination of his urinary tract.

DIAGNOSIS

Diagnosis depends upon the demonstration of pus and bacteria in the urine. Do not, however, be misled by pus which may originate in the vagina in the presence of any febrile illness or which may contaminate any urine which is not cleanly collected. Do not put too much faith in the importance of "clumped" pus cells, especially in girls where vaginal mucus may be the cause of clumping.

Catheterize females and discard the first few drops of urine before you examine and culture the specimen. With males, try a "clean catch", again discarding the first few drops: If you find pus cells or bacteria under these conditions, you must catheterize.

Examine the specimen within one hour. Do not centrifuge the urine but shake it up. Consider more than two to four white blood cells per low power field as abnormal. Consider all red blood cells and casts as abnormal. Centrifuge a portion of the specimen as soon as possible after voiding and gram stain the sediment: if the preparation is made within one hour after collection and bacteria are visible under the microscope, one may consider that the urine is infected. This is a quick and most valuable procedure but it does not take the place of a proper culture and in vitro antibiotic sensitivity tests on the organism.

Culture promptly and always culture. It is important to assume that a normal urine is always sterile, although some clinicians question this. It is even more important to remember that the sickest child may have no bacteria and no pus in his urine until the infection in his renal parenchyma drains into the collecting system. Thus, a normal, sterile urine by no means rules out a urinary tract infection and examination and culture must be repeated persistently in the presence of a sick, undiagnosed child.

TREATMENT

Urinary tract infection is more common in the debilitated child and the mortality in such a child is higher. Do not neglect the patient's general condition while you concentrate on his local pathology. In the presence of persistent infection, especially, improve his diet and his general hygiene; see that he has adequate rest; search for focal infections in such areas as the teeth, the tonsils and adenoids, the ears and the skin. Guard against dehydration, particularly in the presence of diarrhea and vomiting, but administer fluids with great care in the presence of the oliguria or anuria which may occur with fulminating infection. In any event, do not attempt to "flush" out the urinary tract with heroic amounts of fluid.

Treatment of the acute infection:

The important focus of infection, as stated previously, is in the renal parenchyma so do not bother with acidification of the urine itself. Use doses of antibiotics which are adequate for systemic treatment: smaller doses may concentrate to high levels in the urine but it is the level in the kidney which is critical. In general, dose sulfonamides at 0.1 to 0.2 Gm. per kilo, mycins at 50 mgm. per kilo and polymyxin at 2.5 mgm. per kilo, daily.

Culture at three day intervals and treat until the urine remains sterile for one week, but do not treat for less than a period of two weeks. Culture the urine one week after stopping treatment even if the child appears to be well and the urine sediment is normal. Ideally, culture two or three times during the ensuing six months to make certain that the urine remains sterile.

Choose the antibiotic only after performing in vitro sensitivity tests on the organism. Usually, sulfisoxazole (Gantrisin®) is effective against most Gram negative bacilli of the coli-proteus group and it has the advantage that administration may be by any route. Polymyxin is often effective against *Pseudomonas aeruginosa (pyocyaneus)* and is fairly safe when it is given over a period of

two weeks and dosed at 2.5 mgm. per kilo daily. For Pseudomonas, however, we prefer nitrofurantoin (Furadantin®) or streptomycin. Against *Aerobacter aerogenes,* the tetracyclines and streptomycin are often effective. Lastly, erythromycin has proven generally useful in treating most coccal infections, including the difficult *Streptococcus fecalis.*

Signs of systemic illness subside rapidly, usually within two or three days of the beginning of treatment, but this is no proof whatsoever of a bacteriologic cure. If systemic signs do not disappear promptly, suspect an undrained infection in the renal parenchyma, or a perinephric abscess.

Even an acute infection in a male, and possibly in a female, deserves at least an excretory urogram, and careful observance of the urinary stream since the excretory urogram will not always reveal infravesical obstruction. If the infection flares up *even once,* or lasts longer than three weeks, do not consider this a "recurrence". It is a chronic infection, it is serious and it must be dealt with accordingly.

Treatment of the chronic infection:

Obstruction is demonstrable in 50 to 75 per cent of chronic urinary tract infections and one must assume that chronicity means obstruction until the latter is securely ruled out. The urologist must utilize his several techniques for this purpose. An excretory urogram is usually performed first. Then delayed and voiding cystograms are carried out in order to discover ureteral reflux, urethral malformations, and any dye which remains in the bladder two minutes after voiding. Cystoscopy, with ureteral catheterizations and cultures and a retrograde urogram, is performed. Finally, the urinary stream is carefully observed. If obstruction is discovered by any of these techniques, it is imperative that the urologist relieve it, if this is possible. If he fails to do so, the kidneys may ultimately, and silently, be destroyed, even without signs of further infection.

Nitrofurantoin (Furadantin®) seems to be most generally effective in the treatment of chronic infection, even when this is caused by Proteus and Pseudomonas.[1] Do not, however, use it blindly but only after culture and sensitivity tests suggest that it will be useful. Bear in mind that the infecting organism may change with time or secondary infection may occur: culture repeatedly. It is important to use large doses over a long period of time in order to sterilize the renal parenchyma. Give 7 to 10 mgm. per kilo daily for at least two weeks or until the urine is sterile. Then give 2 to 3 mgm. per kilo daily for three months after sterility is achieved, and culture the urine at intervals during this period. If infection flares up, revert to 10 mgm. per kilo daily until cultures are negative and then 3 mgm. per kilo daily for another three months.

It is sometimes necessary to continue treatment for six months to one year or more, even when obstruction is absent or has been relieved. With persistence, however, nitrofurantoin will abolish most infections if there is no obstruction. Serious toxic reactions are rare and the drug has only one main disadvantage: it must be given by mouth and nausea and vomiting may occur. They may usually be relieved by a temporary reduction in dosage.

Ureteral reflux often means the presence of low obstruction. Some authorities, in fact, believe that it always means this. We have seen it in the absence of any obstruction which we could demonstrate and we have seen it disappear when the infection was cured. In any event, a patient who demonstrates this phenomenon should be instructed to void every two hours during the day, should be awakened two times during the night to void and should have fluid intake restricted after 5:00 P. M.

Obstruction is potentially so serious that it may be well not to leave the subject without mentioning three situations where it should be suspected, even in the absence of infection. First is the child who has persistent enuresis after the age of four years, even when there is no pyuria.

Second is the child whose urinary stream is weak or produced with straining; or the infant who defecates or suffers rectal prolapse or hernial protrusion when he urinates. Third is the child who exhibits hematuria after minimal trauma to the kidney area: this suggests hydronephrosis.

SUMMARY

Urinary tract infection in childhood is a potentially *fatal* warning sign. Even though it is a common disease, the patient deserves hospitalization and careful diagnosis and treatment. Cure of his acute signs and symptoms is not sufficient. Obstruction must be ruled out or relieved and adequate treatment and observation must ensure that his urine remains sterile for at least six months. To do less is to gamble that the kidneys may be silently destroyed and a life sacrificed by neglect.

REFERENCE

1. Johnson III, S. H. and Marshall Jr., M.: Nitrofurantoin therapy of urinary tract infections in children, Am. J. Dis. Child. 89:199, 1955.

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THYROCARDIAC DISEASE — FACT OR FICTION? * †

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One of the most challenging enigmas of present-day clinical medicine lies in the subtle role which thyroid gland disorders may play in the etiology and pathogenesis of clinical cardiac disease. This combination of organic disorders occurs most commonly in older people. It is a well known fact that, even in the absence of clinical cardiac disease, thyroid disease may be quite atypical in older people. Many of the classical signs of hyperthyroidism do not occur in considerable numbers of the older hyperthyroid patients. The frequency of late diagnosis and missed diagnosis of myxedema attests to the fact that hypothyroidism also may be subtle, misleading and easily overlooked. When thyroid disorders occur *in combination* with clinical cardiac abnormalities, most of the thyroid symptomatology may be absent or may be masked by the cardiac symptoms, rendering accurate clinical diagnosis difficult.

We do not propose to assert that heart disease is ever entirely due to hyperthyroid conditions, although we think we have seen a very few patients in cardiac failure in whom no other etiological agent except hyperthyroidism could be found by careful study. On the other hand, cardiac decompensation which is entirely secondary to hypothyroidism seems to be accepted as a clinical entity. Regardless of whether its role is primary or ancillary, thyroid disorder in association with heart disease is important, for the control of the thyroid disorder offers a very broad avenue for more successful treatment or even relief of the cardiac disorder.

Since little is known about the incidence or clinical characteristics of thyrocardiac disorders, we proposed to screen a large cardiac population for thyroid disease, then to study the cardiac patients found to have disorders of thyroid function in an effort to learn something about this enigmatic situation.

The usefulness of the protein-bound iodine (P. B. I.) procedure as a diagnostic and research tool in the study of thyroid glandular disorders is well established. Curtis and Swenson [1] concluded that the P. B. I. can be regarded as a reliable index of thyroid function. Riggs, Gildea, Man, and Peters [2] reported the level of blood iodine to be closely related to thyroid ac-

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tivity. Salter, Bassett, and Sappington [3] presented a report of 100 clinical cases using the protein-bound iodine as a test for thyroid function. Salter and Bassett [4] found there was much better correlation of thyroid disease with the P. B. I. than with the basal metabolic rate. Curtis and Fertman [5] in their analysis of blood iodine in thyroid disease reported that the P. B. I. is of diagnostic significance in instances in which it is difficult or even impossible to obtain a reliable determination of the basal metabolic rate. The differentiation of hyperthyroidism from other conditions in which the basal metabolic rate is elevated can be made with the use of the P. B. I. It is also of value in distinguishing goiter with hyperthyroidism from goiter without hyperthyroidism in which the basal metabolic rate may be increased. Allison and Bliss [6] have previously reported on the value of the P. B. I. in diagnosis of thyroid disorders in selected patients with chronic cardiac conditions.

METHODS OF STUDY

For our survey, the P. B. I. procedure by Barker, Humphrey and Soley [7] was modified and a method developed for measurement of serum iodine-bound-to-protein. The steps involved in this method are: (1) precipitation of the blood proteins; (2) washing of the precipitate; (3) drying and ashing of the preciptate in the presence of sodium carbonate; (4) dissolving the iodine from the ash with hydrochloric acid and sulfuric acid; and (5) assaying the iodine colorimetrically by measuring directly the iodide catalysis of the rate of decolorization of ceric ammonium sulphate by sodium arsenite with the Klett-Summerson photoelectric colorimeter. The normal range for this laboratory was determined by statistical analysis after performing determinations on a number of medical students, staff personnel, and a heterogeneous patient population in the clinics of the University of Arkansas Medical Center.

RANGE OF VALUES

All P. B. I. determinations of our laboratory, over a period of two years, were collected and are referred to here as the "total" group. This group consists of 1,420 persons in whom single or an average of multiple P. B. I. determinations have been used. Figure 1 shows the distribution of

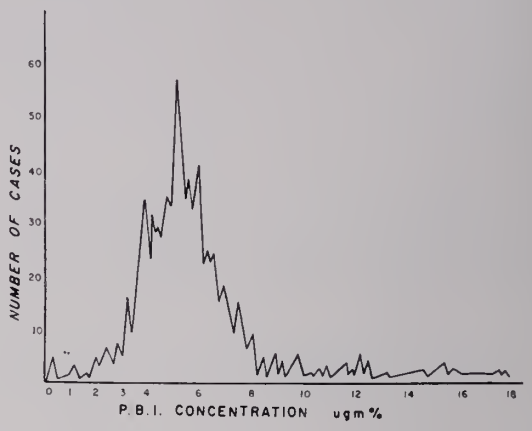


Figure 1

P. B. I. values used to determine the statistical range of normal. The normal P. B. I. range for this total group was found to be 3.5 to 8.0 micrograms per cent. A numerical breakdown of the P. B. I. findings in this heterogeneous clinical population is shown in Table 1. The breakdown shows that 78.9

TABLE 1
TOTAL P.B.I. DISTRIBUTION
TOTAL CASES

P.B.I. meg. %	No. of cases	Per cent of total		Mean value memg. per cent	
0.2-2.0	34	2.4		1.2	
			9.6		2.5
2.1-3.4	103	7.2		2.9	
3.5-4.0	126	9.0		3.8	
			78.9		5.42
4.1-6.0	693	48.9		5.09	
6.1-8.0	301	21.0		6.8	
8.1-12.0	107	7.5		10.2	
			11.5		11.6
12.1	56	4.0		14.3	
Total	1420	100	100		5.8

per cent of the subjects fell into the normal range, and 21.1 per cent fell into the abnormal range, 9.6 per cent being in the hypothyroid group and 11.5 per cent in the hyperthyroid group. The mean value was 5.8 micrograms per cent.

P.B.I. VALUES IN CARDIAC PATIENTS

The Cardiac Clinic was then screened with single or multiple P. B. I. determinations, a total of 509 patients having been tested. Figure 2 shows the scattergraph on these patients. Table 2 shows a numerical

TABLE 2
CARDIOVASCULAR P.B.I. DISTRIBUTION

CARDIOVASCULAR CASES					
P.B.I. mcg. %	No. of cases	Per cent of total		Mean value mcmg. per cent	
0.0-2.0	4	0.9		1.5	
			7.0		3.7
2.1-3.4	31	6.1		3.3	
3.5-4.0	57	11.2		3.8	
			86.4		5.3
4.1-6.0	282	55.4		5.0	
6.1-8.0	101	19.8		6.78	
8.1-12.0	26	5.1		9.5	
			6.6		11.1
12.1	8	1.5		16.2	
Total	509	100	100		5.53

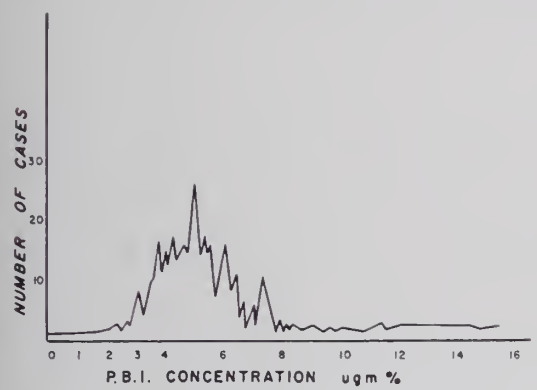


Figure 2

breakdown of the P. B. I. results in these cardiac patients. It will be noted that the scattergraph and distribution figures in the cardiac patients are rather similar to those in the total patient population group. The cardiac group shows a higher percentage (86.4 per cent) of patients who fell into the normal areas. However, in the total unselected group there were many patients who came in with primary and easily recognizable thyroid disease. It is most interesting that in this large cardiac population, all under close medical supervision, there was almost a 15 per cent incidence of patients who had evidence of disturbed thyroid function. Seven per cent of these cardiac patients had low protein-bound iodine values, and 6.6 per cent of them had high P. B. I.'s.

If we combine the heterogeneous group with the cardiac group, 2.5 per cent of the subjects had cardiovascular disease associated with a low P. B. I., and 2.4 per cent of the subjects had cardiovascular disease associated with a high P. B. I. Interestingly enough, 25.5 per cent of all the hypothyroid values found were in the cardiovascular group of patients, and 20.8 per cent of all the hyperthyroid values were found in the cardiovascular cases.

FURTHER EVALUATION OF THYROCARDIAC PATIENTS

The authors thereby secured 69 cardiovascular patients who had abnormal protein-bound iodine values. Detailed examination of these 69 patients showed that 30 of the 69 could be unequivocally diagnosed as hypothyroid or hyperthyroid by clinical and other laboratory means. In this group of patients there was particularly close correlation between clinical diagnosis and values for I^{131} uptake by a method recently described in a series of three papers in the Journal of Clinical Investigation by Meschan, Oddie and Wortham.[8-10] Those patients with abnormal P. B. I. values but whose I^{131} uptake values were normal could not usually be diagnosed as having definite thyroid abnormality. A few patients exhibited a drop or a rise in the protein-bound iodine due to therapeutic or diagnostic measures. Mercurial diuretics, for example, seemed to cause a fall in the P. B. I. Certain individuals were found to have had iodine in the form of saturated solution of potassium iodide, others intravenous pyelograms, gallbladder series, or other radiological determinations in which iodine-containing contrast media had been used.

Of course it is possible that some of these 39 excluded patients may have thyroid abnormalities, the diagnosis of which has been obscured by the diagnostic and therapeutic measures mentioned. In Table 3, however, these 39 patients have been placed in other cardiac classifications and have not been diagnosed as thyrocardiac patients.

CLINICAL CHARACTERISTICS OF THE THYROCARDIAC PATIENTS

Table 3 shows a group of common cardiac manifestations, related to the individual primary cardiac diagnoses involved in our cardiac group study. We do not mean to imply that the 30 patients who had thyroid disease had this as the sole etiology of their

TABLE 3
MANIFESTATIONS OF CARDIOVASCULAR DISEASE

	No.	Aur. fib.	Enl.	M.S.	M.I.	A.I	A.S.	Brady-cardia	Tachy-cardia	P.V.C.	Male	Female
ASHD	166	25	142	0	3	7	2	4	0	16	106	60
HCD	139	14	128	0	0	0	1	2	0	8	60	79
CHD	15	1	5	0	0	0	0	0	0	0	8	7
RHD	65	13	45	31	16	12	5	0	0	2	35	30
AS&HT	28	0	21	0	1	0	0	1	0	4	15	13
LHD	38	3	35	0	0	23	1	0	0	7	36	12
Other	28	2	13	0	1	0	0	0	0	0	19	9
Hyper	13	3	6	1	1	0	0	0	0	0	8	5
Hypo	17	0	8	0	0	0	1	0	1	0	8	9

Legend

ASHD—Arteriosclerotic heart disease.
HCD—Hypertensive cardiac disease.
CHD—Congenital heart disease.
RHD—Rheumatic heart disease.
AS&HT—Arteriosclerosis and hypertension without cardiac manifestations.
LHD—Luetic heart disease.
Other—Unclassified.
Hyper—Hyperthyroid cardiacs.
Hypo—Hypothyroid cardiacs.
Aur. Fib.—Auricular fibrillation.
Enl.—Cardiac enlargement.
M.S.—Mitral stenosis.
M.I.—Mitral insufficiency.
A.I.—Aortic insufficiency.
P.V.C.—Premature ventricular contractions, "extrasystoles."
A.S.—Aortic stenosis.

heart disease. Most of the patients additionally fitted into one or the other etiologic categories, and the thyroid disorder was a complicating but important factor which had been previously unrecognized.

It will be noted that of the 13 hyperthyroid cardiacs, only 3 had auricular fibrillation. No patients had auricular tachycardia. Six had cardiac enlargement. The sex breakdown showed that 8 of these hyperthyroid cardiacs were males, and 5 were females. Of the 17 hypothyroid cardiacs, there were no cases of auricular fibrillation but there was 1 case of auricular tachycardia. Eight of the 17 patients had cardiac enlargement. The sex breakdown shows an almost equal number of males and females in this group.

DISCUSSION

It is most interesting indeed that only the minority of the hyperthyroid cardiacs had clinical dysrhythmias, contrary to the usual beliefs concerning thyrocardiac patients. The only auricular tachycardia patient in the entire thyrocardiac group was an individual who had myxedema in association with heart disease. Rather than revealing a distinct thyrocardiac syndrome, this study has shown that most of the patients fell into a bizarre group of intractable cardiac-failure patients, in whom diagnosis of the thyroid disorder was largely obscured by the cardiac manifestations, but in whom correction of the thyroidal abnormality greatly benefited control of the congestive manifestations. Therefore it would appear that there is a significant incidence of concealed thyroid dysfunction in cardiac patients. Among the hyperthyroid cardiacs, intractable and bizarre congestive failure is a more common manifestation of this combined disorder than is auricular dysrhythmia, as is the case with hypothyroid patients. Diagnosis and control of the thyroid condition yields much potential benefit in correcting the cardiac manifestations.

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SOME SPECIFIC USES OF HYALURONIDASE

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The use of hyaluronidase to increase the rapid absorption of fluids given by hypodermoclysis has been conclusively determined by many observers. That it has other practical applications as observed by me, is the reason for this communication.

It is interesting to learn that hyaluronidase is an enzyme that may be obtained naturally from many sources and acts specifically, according to the manufacturers, by hydrolyzing hyaluronic acid. "Hyaluronic acid is a mucopolysaccharide acid which in animal tissues seems to bind water in interstitial spaces." It further holds cells together in a jelly-like matrix. "It is disaggregated and depolymerized by the action of the enzyme hyaluronidase". Its action is local and no reports of its effect on infections distant from the point of injection have been noted. It is of exceedingly low toxicity and thus far no fatalities from its use have been reported.

Several cases of pleurisy with effusions following pneumonia have yielded successfully to two or three withdrawals of fluid and injection of 500 units of alidase freshly prepared, through the needle through which the fluid had been withdrawn.

Ganglions at the wrist have disappeared after one injection of alidase, the amount of alidase depending on the size of the tumor. The ganglion will disappear if properly injected even if the jelly-like contents are not withdrawn prior to the injection of alidase.

Traumatic cysts at the elbow containing either serum or blood have been made to disappear after one or two injections following withdrawal of fluid.

A traumatic bloody effusion in the knee was successfully treated by rest for several days with subsequent withdrawal of the bloody fluid and several injections of alidase and penicillin, in spite of the fact that many investigators report that the enzymatic action of hyaluronidase is inhibited by blood serum. The penicillin was added because of the marked susceptibility of the knee-joint to infection.

Several knee-joints into which hydrocortisone had been injected with unsuccessful results, were completely relieved by one or two injections of 500 units of alidase into the joint.

A cyst filled with creamy fluid which the pathologist thought was from a salivary gland situated under the angle of the jaw, probably a submaxillary gland, was treated successfully by previously mentioned method, withdrawal of fluid and injection of alidase.

I have had no experience injecting cavities containing fluid of malignant origin,

but I am inclined to believe the efforts are worthwhile to temporarily remove the fluid and thereby make the patient more comfortable.

In all of these cases reported, I have used Alidase, a Searle & Co. preparation, which according to the literature is derived from bull testes. However, hyaluronidase has been found in extract of spleen, the ciliary body and the iris, the venom of snakes, in spermatozoa, in teeth tissue, and in many other organic substances.

The simplicity of the use of this method makes it applicable in office practice. Previous to the adoption of this method, surgery had been necessary in most of these conditions.

Note: Since the above article was written I have had an opportunity to use Alidase following paracentesis of the abdominal cavity for generalized carcinomatosis. I was able to prolong the intervals between "tappings" by several weeks.

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HIATUS HERNIA *

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Recent studies have resulted in a better understanding of the problem of hiatus hernia and an improvement in methods of management. The frequency of esophagitis as a complication has become more widely recognized. The importance of gastroesophageal reflux as a cause of esophagitis has been established. At the same time, improvements in technique have made surgery a more available method of treatment for patients with this condition.

There are several anatomic types of hiatus hernia. In the common forms, radiologic examination reveals that the gastric pouch and the gastroesophageal junction are both located above the level of the diaphragm. Two types of configuration are encountered. In the more frequent type, the lower end of the esophagus appears to enter the herniated stomach at the summit of the hernial pouch. This is the so-called "sliding hernia." In the second type the esophagus enters the stomach laterally and the herniated portion of the stomach often has an undulating contour suggesting that initially the fundic portion of the stomach preceded the cardia in its passage through the diaphragmatic hiatus into the chest. These two types of hernia will be referred to as the "sliding" and the "rolling" types.[1]

Two other anatomic types of hiatus hernia also occur but are much less common than the sliding and rolling hernias. In one of them, the cardio-esophageal junction is located definitely below the level of the diaphragm. This may be considered to be a true paraesophageal hernia. The other rarest type of hernia is one in which the esophagus was congenitally short and a portion of the stomach has been present in the chest since birth. This is the congenital short esophagus type of hiatus hernia and may be interpreted as being a partial thoracic stomach rather than a hernia.

The physiologic behavior of the cardia is abnormal in many patients with hiatus hernia. In normal individuals it serves to prevent regurgitation of the gastric contents into the esophagus. The local mechanisms which theoretically may serve this purpose are three in number. The first is the acute angle of junction of the lower esophagus and the fundic portion of the stomach. It is postulated that when the stomach is filled, the fundus presses laterally against the lower esophagus and a one-way valve-like action is produced which prevents regurgitation into the esophagus. A second possible mechanism is the constricting action of the diaphragm on the esophagus, as the latter passes through the hiatus. This constricting action of the dia-

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phragm may be observed during x-ray examination and may play some rôle in preventing gastroesophageal reflux. The third mechanism for the prevention of regurgitation is the tonic contraction of the lowermost portion of the esophagus. This is perhaps the most important of the three mechanisms for the prevention of gastroesophageal reflux. Although there is no histologic evidence of a sphincter in this region, recent physiologic studies have demonstrated that a sphincter-like action of the muscle of the esophagus does exist in this area.[2] This also happens to be the site of increased muscle tone which produces the obstruction in idiopathic cardiospasm.

The cardiac sphincteric mechanisms can be studied readily by either clinical or laboratory methods. Competence of the cardia can be tested during a routine radiologic examination. For this purpose, the stomach is first filled with barium. The patient is next placed in the head down position and is examined both prone and supine while asked to strain in order to increase intra-abdominal pressure. The lower esophagus is meanwhile observed for evidence of regurgitation of barium. No regurgitation of barium will be observed in 98 per cent of normal adults.

Another relatively simple method for the demonstration of gastroesophageal reflux is intubation of the esophagus. For this purpose a small bored tube is swallowed so that the tip is located in the lower third of the esophagus. Histamine is given in order to stimulate the secretion of hydrochloric acid and the patient is placed in the Trendelenburg position. Periodic aspirations are carried out to ascertain whether free acid can be obtained from esophageal levels. No acid is found in the esophagus in 90 per cent of normal adults.

The sphincteric action of the lower end of the esophagus which appears to play an important rôle in preventing acid reflux can also be demonstrated by direct measurement of intra-estophageal pressure.[2] An open tipped catheter is passed to the level of the diaphragm and intraluminal pressures are recorded at various levels of the lower esophagus. Such measurements indicate that there is an increased tonus of the resting esophagus in the area at the diaphragmatic level, as compared with other parts of this organ, suggesting a true sphincteric action.

Gastroesophageal reflux can be demonstrated in many patients with hiatus hernia by means of these various techniques. In a series of patients studied at The Presbyterian Hospital, x-ray examination revealed evidence of an incompetent cardia in approximately 50 per cent of examinations. Esophageal reflux was also demonstrated by the intubation technique in about 50 per cent of patients.[3]

The actual incidence of reflux which occurs under physiologic conditions in patients with hiatus hernia may not be revealed by studies of this type. The results of the various methods of study are not always consistent. Tests may be positive on one occasion and negative on another in the same individual. When both x-ray and intubation studies were carried out on the same patient, reflux was found by at least one method in two-thirds of patients. It seems very likely that reflux occurs under natural conditions more often than the tests indicate. In any event, it is justifiable to conclude that gastroesophageal reflux is a common occurrence in patients with hiatus hernia.

Incompetence of the cardia is currently regarded as the basis for the esophagitis which is frequently seen in patients with this disorder. Esophagoscopic examination often reveals changes in the lowest portion of the esophagus immediately above the cardia. Reddening, friability, granularity or superficial ulceration of the mucosa may be seen. When the lower end of the esophagus is studied in patients with hiatus hernia through the esophagoscope, the cardiac orifice often appears abnormally patulous. Fluid regurgitates freely from the gastric pouch into the esophagus. These inflamatory changes in the lower esophagus may progress to the formation of stricture. One may conclude that the various inflamatory changes in the lower esophagus are secondary to the irritating action of regurgitated

gastric juice. The squamous epithelium which lines the esophageal mucosa does not appear to withstand the action of digestive juices.

RESULTS OF MEDICAL MANAGEMENT

A study of the results of medical management in a series of patients with this disease was recently carried out.[4] Almost all patients were individuals who were experiencing symptoms which appeared to be at least partially attributable to the presence of the hernia.

The incidence of associated diseases in this group of patients was of interest. The most common associated lesion was a peptic ulcer, which was located either in the stomach or duodenum. Diseases of the biliary tract and coronary arteriosclerosis were also common. Seventeen per cent of patients either presented evidence of cholelithiasis or had previously undergone cholecystectomy. Only half of those patients who had undergone removal of the gallbladder had been found to have gallstones, and it appeared that, at times, the gallbladder had been erroneously removed because of symptoms due to hiatus hernia. Over 25 per cent of our patients with hiatus hernia also had either gall bladder disease or peptic ulcer. There appears to be a striking incidence of associated abdominal visceral disease in patients with hiatus hernia.

Coronary disease was considered to be present when patients complained of substernal pain in response to exertion as well as symptoms which seemed attributable to hiatus hernia. Most patients with anginal symptoms also presented electrocardiographic evidence of coronary disease. The incidence of coronary disease in our patients with hiatus hernia did not appear to exceed the natural expectancy for the age groups in the series.

The most common symptoms in this series of patients with hiatus hernia were substernal burning and a sense of gaseous distention which was usually referred to the xiphoid region or to the epigastrium. These types of distress came on characteristically after meals and during the night. Some patients complained of frank substernal pain occurring periodically, usually relieved by alkalies. Gross hemorrhage was encountered in 18 per cent of those patients with hiatus hernia who did not have associated radiologic evidence of a peptic ulcer in the stomach or duodenum. Difficulty in swallowing was a very frequent symptom and was noted, at times, in somewhat over one quarter of the patients.

The program of medical treatment was composed chiefly of a dietary regimen and the use of antacids. Small frequent bland feedings and various alkalies between meals was advised. The patients were instructed always to avoid the horizontal position, which both favors herniation of the stomach and also causes regurgitation of the gastric contents into the esophagus. The institution of this program of therapy was usually followed by a rapid decrease in the severity of the distress in the majority of patients. After a period of symptomatic improvement, many patients were prone to modify this regimen depending on their symptomatic course.

The series included 120 patients who were observed for an average period of four years. The results were most easily appraised in terms of patient years. The result for any given year was considered satisfactory if the patient remained either free from symptoms or suffered from only mild distress such as heartburn or gaseous distention readily relieved by medications.

The patients with hiatus hernia in whom no associated gastric duodenal ulcer was present, experienced a satisfactory follow-up course during half of the years of patient observation. Moderate or severe symptoms occurred during the other half of the period of observation. The patients were not often incapacitated by their disease. Severe symptoms including gross hemorrhage, severe ulcer-like pain or marked dysphagia sufficient to necessitate a period of hospitalization, occurred only about once in every ten years of patient observation. The remaining period of long-term observation was usually marked by symptoms of moderate severity.

With a single exception there was no mortality in the 120 patients observed for an average period of four years. One death occurred in a patient with an associated

gastric ulcer who underwent surgical intervention because of acute hemorrhage from the ulcer. The course of the patients with hiatus hernia with no associated ulcer in the stomach or duodenum was, on the whole, benign.

However, there is a group of patients with hiatus hernia who suffer frequent and rather severe substernal distress. In the patients studied in our Clinic, this group constituted a little over 10 per cent of those individuals with hiatus hernia without associated gastroduodenal ulcer. These were patients who complained rather continuously of nocturnal heartburn or substernal pain persisting for many months or even for years. The symptoms could not be satisfactorily controlled by the usual therapeutic measures. A number of these patients were finally subjected to operative repair of the hernia.

There was no factor common to all patients which appeared to account for this type of unfavorable clinical course. The hernias were of all sizes, small, medium or large. Intractable symptoms were seen in patients with all types of hernia—the sliding, rolling, paraesophageal and congenital short esophogus types. Esophagitis was demonstrated in some patients by esophagoscopic examination but was absent in others although the patients were examined during a symptomatic period. Gastroesophageal reflux was demonstrated in some patients but could not be found in others. The findings at operation were of interest. In those patients who were subjected to operation, inflammatory changes about the site of the hernia were evident in some instances. However, such changes were not evident in other individuals with similar symptoms. Emotional factors were also considered to play an important rôle in some of the patients with intractable distress. It was often difficult to be certain to what extent emotional problems affected the clinical picture.

The mechanism of persistent distress in patients with hiatus hernia is not entirely clear. It appears that esophagitis, mechanical factors related to the hernia itself and personality factors, all may play a rôle.

PROGNOSIS IN HIATUS HERNIA

The long-term prognosis for patients with hiatus hernia is an important problem. The need for surgical intervention depends in part on the possibility of the development of complications under medical management. Our studies fail to indicate that there is much tendency for the disease to worsen with the passage of the years in the average patient.

Symptoms of hiatus hernia are, in general, of about the same severity during the first year of illness as during subsequent years. Our patients who were under treatment during the first year of symptoms had, as a group, symptoms of the same frequency and intensity during the first year of observation as was observed in patients whose symptoms were of longer duration.

Stricture of the esophagus may develop at any time in a patient with hiatus hernia. Among 100 patients with simple hiatus hernia in our Clinic there were 10 individuals with stricture. Dysphagia was the first symptom of hiatus hernia in 2 of these patients. Dysphagia first appeared in the other 8 patients at intervals which varied from eight months to more than twenty-two years after the onset of symptoms attributable to hiatus hernia.

Two findings seem important prognostically in patients with hiatus hernia. These are the presence of esophagitis as seen at esophagoscopy and the coexistence of a gastric or duodenal ulcer. Associated ulcerative disease either in the esophagus, stomach, or duodenum appears to be accompanied by a poorer prognosis than that which is found in the patient with an uncomplicated hiatus hernia.

Esophagitis as visualized through the esophagoscope can be demonstrated in at least one half of the patients who have relatively severe symptoms. It is commonly found in patients with substernal pain of the ulcer type or in patients who have sustained gross hemorrhage. It appears to be the origin of bleeding in many of the patients with this disorder who manifest gross or microscopic hemorrhage. Esophagitis is, moreover, the basis for stricture

formation in other patients. The long-term follow-up course of patients with an established esophagitis is somewhat poorer than that of the average individual with a hiatus hernia.

Patients with peptic ulcer as well as hiatus hernia are prone to have more trouble than those with a hiatus hernia alone. In our experience, this combination has resulted in moderate or incapacitating symptoms during approximately two-thirds of the years of patient observation, as compared with 50 per cent of patient years in the individuals with hiatus hernia without associated gastroduodenal ulcer. Esophagitis is found very frequently in the patients with associated peptic ulcer. Complications such as hemorrhage and stricture are more common in this group of patients. It is, of course, often difficult or impossible in such patients to distinguish between the symptoms which are due to the ulcer and to the hiatus hernia.

We have been unable to establish any relation of a number of other factors to prognosis. The size and anatomic types of hernia have little prognostic significance. Patients with larger hernias, as a group, have experienced a clinical course which was essentially no different from those with small hernias. Furthermore, no significant differences have been noted between patients with the sliding and rolling hernias. Patients with rolling hernias had symptoms of essentially the same severity as those with the sliding type. Hemorrhage occurred as a complication frequently in both types of hernia. However, others have reported fewer complications in patients with a rolling hernia.[1]

The ability to demonstrate gastroesophageal reflux on radiologic examination also has no prognostic significance. In a study of this problem reflux was observed in 31 of 70 patients when it was carefully sought for. The overall results in the patients with demonstrable reflux did not differ significantly from the results in the group as a whole.

COMPLICATIONS OF HIATUS HERNIA

Hemorrhage has been a complication in 18 per cent of our patients with hiatus hernia without gastroduodenal ulcer. The hemorrhage was usually not severe although it occasionally has produced clinical shock. There has been no mortality. Hemorrhage occurring in patients with hiatus hernia is not as dangerous as hemorrhage in patients wth duodenal ulcer. Multiple hemorrhages have been recorded in about 5 per cent of our patients with hiatus hernia. Our experience with the follow-up course after multiple episodes of bleeding is too limited to justify analysis.

Dysphagia is a rather common complaint in patients with hiatus hernia and has occurred in more than a quarter of our patients. It varies from a mild sense of obstruction while swallowing solid food to complete inability to swallow or retain liquids. It is attributable to a stricture in some instances but often occurs also in individuals who present no objective findings other than the hiatus hernia alone.

Dysphagia may apparently result from obstruction to the passage of food at the level of the diaphragmatic hiatus. For example, an impaction of a bolus of food in the stomach pouch above the diaphragm was noted radiologically in one patient with sudden dysphagia. Another patient with dysphagia was accidentally shown on x-ray examination to have retained telepaque tablets in the supradiaphragmatic portion of the stomach for twelve hours after ingestion. A contraction ring of the type described by Kramer and Ingelfinger located at the lower end of the esophagus occasionally appears to account for dysphagia in patients with hiatus hernia.

A stricture at the distal end of the esophagus is a frequent cause of dysphagia. Its presence is usually suggested by the symptoms and radiologic findings. The obstruction can be readily confirmed by means of the passage of a No. 34 French stomach tube which contains a flexible metal obturator.

Most patients with a stricture of this type can be successfully treated by means of periodic dilations with appropriate metal bougies. Relatively few treatments are required in order to dilate the stricture adequately. The subsequent clinical course in

patients with stricture is fairly satisfactory, as a rule, and the patients are seldom incapacitated by symptoms. From time to time the stricture tends to recur and repetition of the dilation with metal bougies is necessary occasionally in most patients. This is readily accomplished if undertaken promptly after the recurrence of the difficulty in swallowing. Occasionally dilation of a stricture with hiatus hernia is found to be technically impossible and surgical intervention may be necessary.

SURGERY FOR HIATUS HERNIA

In recent years, experience with the surgical repair of hiatus hernia has broadened and, on the basis of the available data, it is now possible to predict with some accuracy the results which can be anticipated following surgical procedures for this lesion. It has become apparent that a successful repair can be expected in a larger proportion of patients than formerly if certain principles in technique are observed. The results of surgery for hiatus hernia at The Presbyterian Hospital have recently been reviewed by Humphreys and associates.[5] In a series of patients who were operated upon in recent years by a group of surgeons who have made a special study of this problem, a follow-up survey revealed that 85 per cent of individuals had had satisfactory results. There was no operative mortality in this group. The current operative procedures yield results which contrast sharply with the earlier experiences in the same Clinic with the surgical repair of hiatus hernia. A survey of the earlier cases, operated upon by a variety of techniques, showed that only about one third of the patients had really had a satisfactory follow-up course. Great progress has clearly been made in surgical therapy and better results may now be anticipated in most patients who undergo operative repair of a hiatus hernia.

Surgery for hiatus hernia with stricture poses a much more complicated problem. Simple resection of the lower esophagus often yields unsatisfactory results. At the present time the procedure of choice at The Presbyterian Hospital involves resection of the lower esophagus and the transplantation and interposition of a jejunal segment between the esophagus and the stomach in place of the resected portion of the esophagus. This major technical procedure is accompanied by a considerable operative risk and has not been recommended for patients with stricture unless periodic dilation was unsuccessful.

The prognosis of patients with hiatus hernia under medical management may be summarized as follows: The long-term clinical course of most patients with hiatus hernia is quite benign. During about half of the follow-up years the patients remain either symptom-free or have, at most, mild heartburn or indigestion readily relieved by simple remedies.

Comparatively unsatisfactory medical results are obesrved in three groups of individuals. These groups tend to overlap.

1. A small group have intractable pain or substernal distress. The intimate basis for severe distress is not well understood. Esophagitis, mechanical factors, or personality problems may play an important rôle.

2. The prognosis in patients with hiatus hernia and an associated ulcer of the stomach or duodenum is also relatively unsatisfactory. Moderate or severe symptoms recur during about two-thirds of the follow-up years.

3. The presence of esophagitis gives rise to complications such as hemorrhage or stricture. The majority of patients with hemorrhage or stricture fare quite well under conservative management.

4. Surgery may be considered particularly for patients with intractable distress from hiatus hernia. Patients with an associated peptic ulcer of the stomach or duodenum may also require surgical intervention.

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RECENT ADVANCES IN THE USE OF ARTERIAL GRAFTS *

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In the past ten years an ever widening area of arterial disease has been successfully treated by graft replacement. Beginning with the use of autogenous veins to replace injured arteries, the indications for arterial grafts have increased prodigiously. The introduction of methods of preservation of arterial homografts gave a tremendous stimulus to the field of arterial surgery, beginning with Gross's [4] work with fresh homologous arteries in long aortic coarctations. The expanding need for arterial substitutes soon outpaced the supply of available homgrafts in most Medical Centers. Late degenerative changes of dilatation or occlusive atherogenesis in homografts have also led to a search for more satisfactory substitutes.

TYPES OF SYNTHETIC GRAFTS

The demonstration by Voorhees and Blakemore [7] that synthetic cloth tubes would serve as durable replacements for arteries was the next forward step. Tailored tubes of vinyon, orlon, nylon, could be fashioned on a sewing machine in the operating room after exposure of the diseased vessels. This was a major advance but a number of technical problems remained in making a really practical and versatile graft of synthetic material. Cuffs and seams made the tailored prosthesis difficult to suture. Ordinary cloth is usually so porous that considerable blood loss occurs at the time of insertion. Lastly, a collapsible cloth tube if not placed under exactly the right tension, is subject to wrinkling or buckling with resulting thrombosis. With a collapsible fabric, flexion of the graft across a joint such as the knee would be dangerous, and by-pass grafts difficult to accomplish.

We were fortunate to have the assistance of the Chemstrand Corporation Research Laboratory in solving many of these difficulties. Braided nylon tubes were developed with crimps or corrugations to prevent kinking.[1, 2] The tube ends could be heat-sealed to eliminate the need for cuffs to prevent fraying. "Y" shaped tubes were developed for replacement of the frequently diseased aortic bifurcations. For the past three years these nylon tubes were used in large numbers by our clinic and others with satisfactory results. It was realized early in this development that nylon was not the ideal fiber. Despite its initial superior tensile strength, reaction to tissue fluids causes slow decrease in strength in the first two years after implantation. This is true to less degree of orlon, vinyon, and dacron.[5] Only teflon (Dupont's trade name for its polytetrafluorethylene fiber) shows no tissue reaction, no water absorption, and no loss of tensile strength after several years.[5] Recently methods have been developed for crimping tubes of teflon, and knitted tubes of this material have been used clinically for the past six months. The knitted construction allows easy suturing of the tube end without fraying and without the necessity of heat sealing. This tube is much easier to insert than nylon, and approaches more closely the ideal graft.

CURRENT USE

Grafts currently are used for replacement of aneurysms, and injured arteries, and to by-pass arterial obstructions. Of particular interest recently has been the clinical possibility of relief of carotid artery obstructions due to plaque formation at the bifurcation of the internal carotid. Patients with transient episodes of unilateral arm and leg weakness, facial paralysis, monocular blindness and aphasia have the best prognosis since these patients often have stenosis, not complete occlusion of the internal carotid. Even strokes with complete hemiplegia if treated in the first forty-eight hours may occasionally be relieved if the fresh carotid thrombus can be aspirated. Evidence is increasing that more strokes than realized are due to extracranial rather

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than intracranial carotid thrombosis. In our clinic Lyons and Galbraith[6] have developed a subclavian to internal carotid shunt to restore carotid flow. By suturing the proximal end of the shunt to the subclavian artery, it is never necessary to occlude the common carotid artery with its valuable collateral blood supply.

The most frequent single indication for arterial grafts has been segmental occlusion of the femoral arteries. Again the best results can be anticipated when the process is seen earliest, that is, when the symptom of calf claudication on walking is the only complaint. It was originally believed that the presence of gangrene of the toes, constant pain at rest, and severe color change in the extremity on dependency always indicated diffuse arterial obstruction. We now know this is not always true, since a number of such cases have been demonstrated by arteriography to have long segmental obstruction with patent vessels beyond.

ARTERIOGRAPHY

More and more we feel that every limb in which the popliteal pulse is absent should be subjected to arteriographic study before therapy is planned, or before the leg is amputated. Too frequently still the objective of arteriography is poorly understood. An arteriogram should, of course, demonstrate the site of origin and length of arterial obstruction but these objectives are less important than adequate visualization of the arterial pathways distal to the obstruction. If the popliteal branches in the calf are obstructed, any type of grafting or thrombectomy procedure will be doomed to failure from inadequate run-off. The arterial system should be visualized down to the ankle in cases of femoral obstruction. A Cassette changer, manually operated, which will allow exposure of 36 inch films at 1 second intervals has been a great help in obtaining complete information in regard to the arterial circulation of the leg.

INCIDENCE OF THROMBOSIS

One discouraging feature of many reports on surgery for femoral arteriosclerosis has been the high incidence of late thrombosis. In the past three years we have carried out 38 by-pass grafts for segmental femoral arteriosclerosis.[3] There were 7 acute failures, most of them predictable due to inadequate run-off. Of 31 patients who left the hospital with patent grafts, only 4 (12.8 percent) have become occluded from four to eighteen months after insertion. It is felt that progression of atherosclerosis in small vessels is the cause of late thrombosis and a certain percent of these grafts will occlude until a method of halting the progress of atherogenesis is found. This relatively low incidence of occlusion of nylon and teflon grafts has been encouraging, 4 grafts have functioned over two years and 17 longer than a year.

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THE EARLY DETECTION AND TREATMENT OF BRONCHOGENIC CARCINOMA *

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It has now been a quarter of a century since Graham [1] performed the first successful pneumonectomy for bronchogenic carcinoma in 1933. The bright promise of this brilliant achievement both for resectability and long term survival has not been realized in the majority of patients having this disease. In our † series of 1180 patients operability rates have remained remarkably stationary over a period of years (Fig. 1). Half of the patients had lesions which were inoperable when first seen, and another 15 per cent were found to be nonresectable at the time exploratory thoracotomy was done. One third of the patients had resectable lesions, and in only a small percentage of these were their carcinomas sufficiently early or well localized to permit long term survival. The increasing frequency of bronchogenic carcinoma and the results of surgical treatment make it evident that surgical removal is not the answer to the problem in all patients and emphasizes the need for a careful selection of patients for surgery based on detection of biologically favorable lesions during an early localized stage.

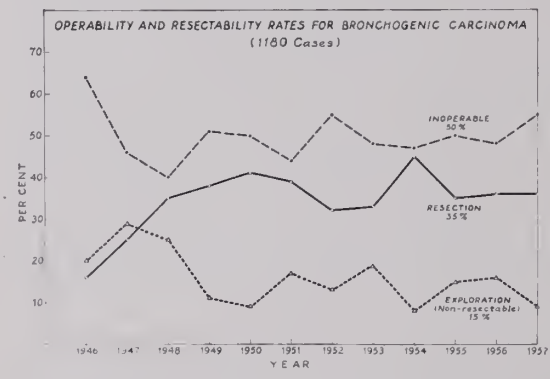


Figure 1. Operability and resectability rates for 1180 cases of bronchogenic carcinoma seen 1946-1957. The operability rate of 50 per cent and the resectability rate of about 35 per cent remain remarkably stationary.

The early detection and treatment of bronchogenic carcinoma depends on clear definition of the factors determining the spread of cancer and its prognosis. Two antithetic theories of explanation exist at the present time. The first of these, *the classical temporal theory,* emphasizes the function of time and states that a cancer begins as a localized disease, grows in a steady and irrevocable manner, spreads to the regional lymph nodes in time and with the passage of more time disseminates throughout the body. The second and more modern theory of biologic *predeterminism* states that the behavior of a neoplasm in an individual host is an expression of a biologic potential established in its inductive phase. Its characteristics are established in the preclinical phase and remain more or less constant throughout its life, although it may undergo intermittent periods of growth and quiescence. Cognizance of the respective merits of each theory forms the foundation for the rationale of treatment of bronchogenic carcinoma.

CLASSICAL TEMPORAL THEORY

The classical temporal theory has been generally accepted by surgeons and forms the logical basis for the traditional radical approach to carcinoma. It has been widely promulgated, both within the profession and to the lay public, that the prognosis in cancer can be altered by early and wide excision of the neoplasm together with the regional lymph bearing area. This has occurred in spite of evidence to the contrary that it is often impossible to correlate better end results with early treatment from the standpoint of time alone. In this concept the existing methods of diagnosis and treatment of cancer are considered adequate, and responsibility for any delay in detection is placed

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, Shreveport, May 6, 1958.

† The combined experience of Drs. Robert R. Shaw, John L. Kee and the author.

alike on the physician and the individual concerned. The surgeon is often absolved of the consequences of failures of therapy on the basis that the patients arrived too late to obtain a good result. This is generally accepted in spite of the opposing evidence that some of the long term survivors are those with the longest history of their disease who arrived late for treatment.

Husfeldt [2] has found in Denmark that the operability rate for bronchogenic carcinoma is practically the same for those who come in early and those who arrive late for treatment. He explains this apparent paradox to the doctrine of the temporal theory on the basis that the more rapidly growing carcinomas produce progressive symptoms in a shorter period of time but are frequently inoperable. On the other hand the more slowly growing tumors are accompanied by less pronounced symptoms but may still be operable when the patient finally presents himself for treatment late.

Because it is reasonable to assume on the basis of circumstantial evidence that early detection and treatment may prolong survival time in some individual patients, it is often disregarded that to diagnose a cancer earlier is to increase survival time by a similar period even without treatment (Fig. 2). Rigler [3] has shown in a retrospective study of roentgenograms of the chest of patients with bronchogenic carcinoma that in over half of the hundred patients followed by this means, their lesions were found to antedate either symptoms or diagnosis by two years or more and as long as fourteen years. The average survival time after institution of therapy was only nine months; whereas before this they had lived with their cancers for years. Earlier diagnosis would have resulted in a proportionately longer survival time after the diagnosis was made regardless of treatment.

THEORY OF BIOLOGIC PREDETERMINISM

The theory of biologic predeterminism

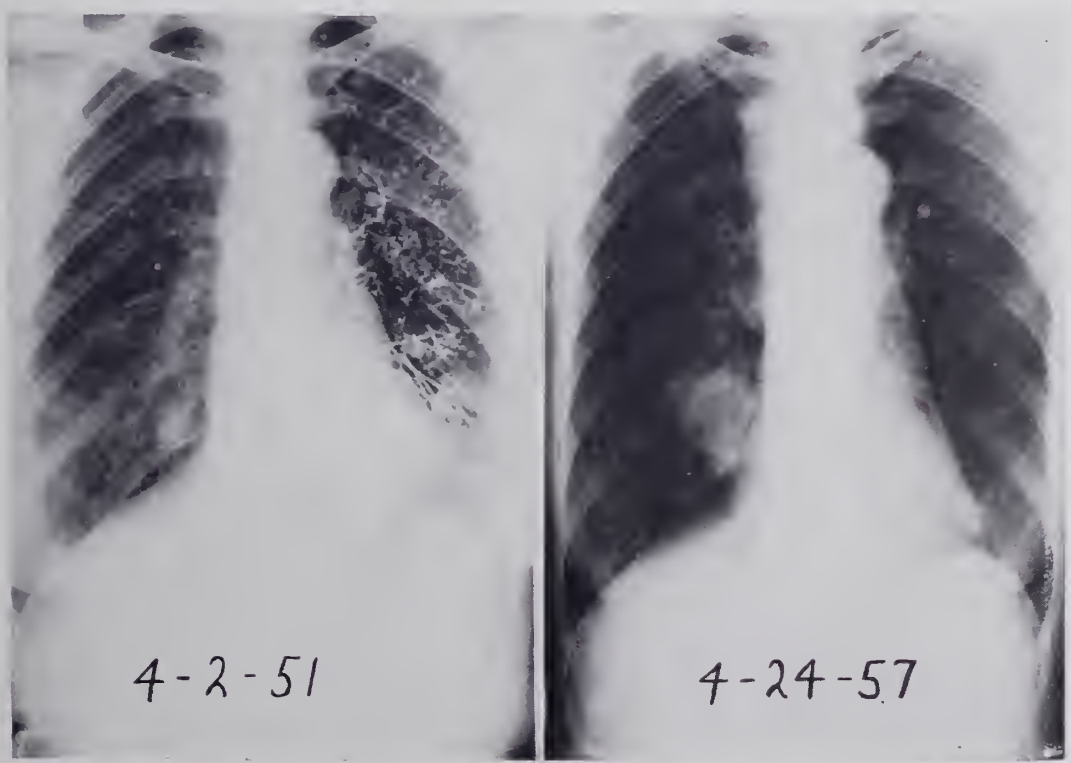


Figure 2. Roentgenograms of the chest six years apart of a woman found to have a proven inoperable carcinoma of the middle lobe with mediastinal node involvement in 1957. The patient has survived seven years without treatment. Earlier diagnosis would have resulted in survival for a similar period regardless of treatment.

enunciated by Ian MacDonald [4] and supported by Crile [5] is a tenable concept which explains the course and prognosis of cancer on the basis of the biologic characteristics involved. The cell type, the location, and the resistance of the host largely determine the pattern of behavior and prognosis, and the factor of time becomes less important as a consequence only of the biologic traits of the particular neoplasm involved.

Application of the theory of biologic predeterminism to bronchogenic carcinoma explains the variegated pattern of behavior and prognosis in this neoplasm and places the rationale of treatment on a logical basis. We have found [6] that in 25 per cent of our patients with bronchogenic carcinoma the initial complaint which prompted the patient to seek medical advice was one indicating inoperability: such as headache due to cerebral metastases, loss of voice due to involvement of the recurrent laryngeal nerve, pain due to involvement of the brachial plexus, venous distention due to involvement of the mediastinum, painless pleural effusion, dysphagia due to involvement of the esophagus, involvement of such distant organs as bone and peritoneum, or subcutaneous metastases due to generalized dissemination of cancer. The occult nature of the primary lesion, the insidious onset, the paucity of symptoms, and the rapid growth with early progression to metastasis in this group make the diagnosis and treatment impossible to attain during an early localized stage. About 20 per cent of our patients have an undifferentiated carcinoma, widely recognized for its rapid dissemination and considered by many as a sign of inoperability in itself. If the 25 per cent of patients in whom the initial complaint indicated inoperability are added to the 20 per cent who have undifferentiated carcinomas and allowance is made for overlapping of the two groups, we estimate that roughly 35 per cent of the patients having bronchogenic carcinoma will have the type of tumor and lack of resistance to predetermine inoperability biologically. The function of time is not important in this group. By contrast, low grade epidermoid carcinomas may remain well localized for long periods of time, produce less pronounced symptoms over several years, and yield long periods of survival after resection is finally done. These lesions are late in point of view of time but favorable from the standpoint of biologic characteristics and localization. Many of the patients who survive for long terms following resection are in this group with histories extending over several years.

A cancer may be early biologically but late chronologically. The observation that a particular lesion such as a pulmonary nodule, is symptomless may give the impression that it is an early lesion in point of view of time but this may or may not be true. (Fig. 3) The fact that it may remain localized and symptomless for a long period of time, in some cases for years, is a direct expression of its biologic character. The amount of time required for its eventual growth peripherally or centrally to produce symptoms or involve lymph nodes depends on its cell type, the resistance of the host, and its original location. Time is but a consequence of these factors. The term *early* applies more to the degree of localization rather than to its temporal aspects.

Emphasis of the biologic factors in bronchogenic carcinoma does not preclude attention to the temporal factor. In its proper perspective, time is of great importance in the early detection of the biologically more favorable types of bronchogenic carcinoma, particularly those presenting as a pulmonary nodule during the asymptomatic phase and the early, well localized, low grade hilar lesions. The challenge today is to learn more about the biologic characteristics of the various types of bronchogenic carcinoma so that we will know which lesions can be diagnosed in an early localized stage and therefore are suitable for surgery, which will be benefited by radical resections, and which may be treated by more conserva-

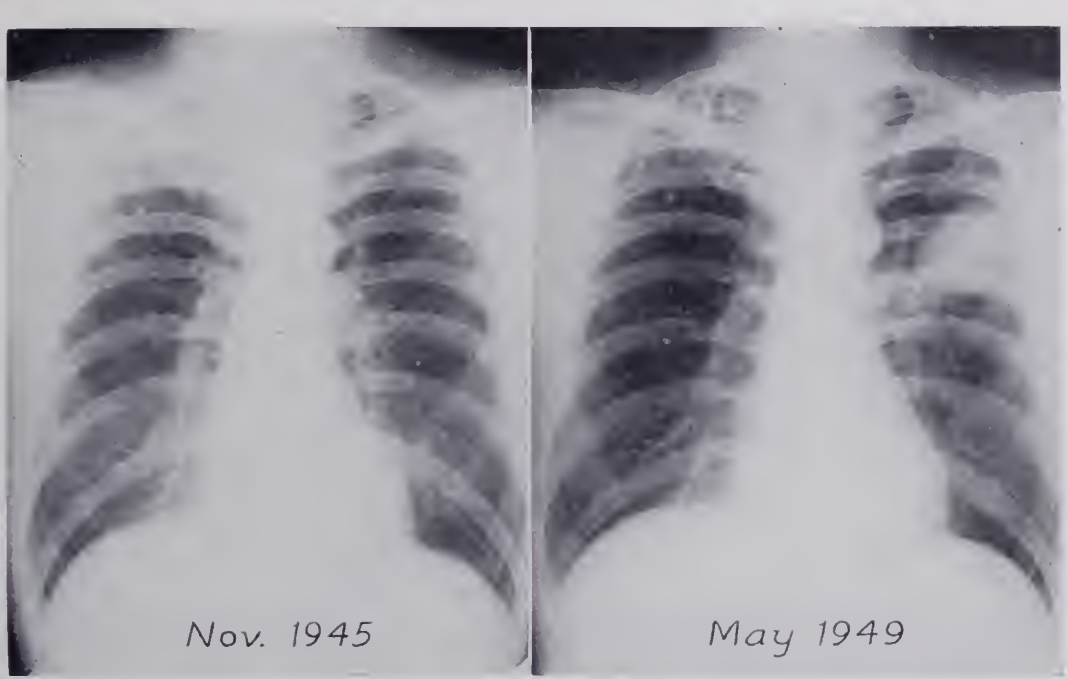


Figure 3. Bronchogenic carcinoma removed by lobectomy May 1949, after hemoptysis occurred. Previous roentgenogram of the chest, in November 1945, revealed a nodule in the same location. This cancer was early biologically but late chronologically. The patient has survived nine years after lobectomy and over twelve years after the earliest evidence of the lesion, demonstrating its favorable biological character.

tive resections, as lobectomy, without sacrifice of survival time but with the attendant advantages of a lower mortality rate and a better quality of survival.

PULMONARY NODULE

The most favorable location from the standpoint of early detection, resection, and prognosis is the bronchogenic carcinoma presenting as a pulmonary nodule. In our series of 102 patients with lesions in this location, 82 patients or 80 per cent were operable and all but one of these were resectable (Table 1). There was 1 operative mortality as a result of 9 segmental resections, 62 lobectomies, and 10 pneumonectomies.

The survival rates for two years or more following resection of 81 bronchogenic carcinomas presenting as a pulmonary nodule were 45 per cent for the entire group (Table 2) and 70 per cent for those that were asymptomatic (Table 3). These results compare very favorably with an overall resectability rate of 35 per cent for all types of bronchogenic carcinoma and a survival rate of 35 per cent for all resections at two years.

The bronchogenic carcinoma presenting as a pulmonary nodule is readily detected by routine roentgenograms of the chest. By definition it is roughly spherical, of soft density but may contain calcium, and

TABLE 1.
OPERABILITY AND RESECTABILITY RATES FOR 102 PULMONARY NODULES DUE TO BRONCHOGENIC CARCINOMA. EIGHTY PER CENT WERE OPERABLE AND RESECTABLE

Status		No. Cases
Inoperable		20
Distant metastases	15	
Poor pulmonary function	4	
Refused surgery	1	
Operable—With Evidence of Node Involvement		21
Lobectomy	14	
Pneumonectomy	6	
Exploration	1	
Operable—Without Evidence of Node Involvement		61
Segmental Lobectomy	9	
Lobectomy	48	
Pneumonectomy	4	
Total		102

One death following lobectomy due to cardiac arrest (1.2%)
Shaw, Paulson and Kee 1945-57

TABLE 2.
SURVIVAL RATES FOR ALL PATIENTS WHO HAD RESECTABLE PULMONARY NODULES DUE TO BRONCHOGENIC CARCINOMA

Period Since Resection	Number of Resections	Number Alive	Percent Surviving
Less than 1 year	16	11	73
1 year	17	13	
2 years	12	6	45
3 years	17	5	
4 years	4	3	
5 years	15	9	
Total	81	47	

(Five deaths were due to causes other than bronchogenic carcinoma.)
Shaw, Paulson and Kee 1945-57

TABLE 3.
SURVIVAL FOLLOWING RESECTION FOR 35 ASYMPTOMATIC PULMONARY NODULES DUE TO BRONCHOGENIC CARCINOMA

Period Since Resection	Number of Resections	Number Alive	Percent Surviving
Less than 1 year	7	6	80
1 year	8	6	
2 years	4	4	70
3 years	6	2	
4 years	3	3	
5 years or more	8	6	
Total	36	27	

(Three deaths were due to causes other than carcinoma.)
Shaw, Paulson and Kee 1945-57

is surrounded by lung tissue on all sides (Fig. 4). It is often not sharply circumscribed, and its border may be notched or nodular. Because of its location in the contrasting lung parenchyma, its roentgenographic shadow may be readily detected during a symptomless phase and of a size as small as a few millimeters in diameter.

The mere presence of a pulmonary nodule like a nodule in the breast is an indication for surgical removal in the interests of diagnosis and treatment in 80 per cent of patients seen with this lesion.[7] One in three of these patients have a nodule due to bronchogenic carcinoma, and the incidence of carcinoma increases in direct proportion with the patient's age. The finding of a solitary pulmonary nodule in the presence of a known primary lesion in another organ does not constitute presumptive evidence that the lesion in the lung is metastatic. In many of such patients the solitary pulmonary lesion is a separate primary carcinoma of the lung.[8]

Lobectomy or segmental resection are

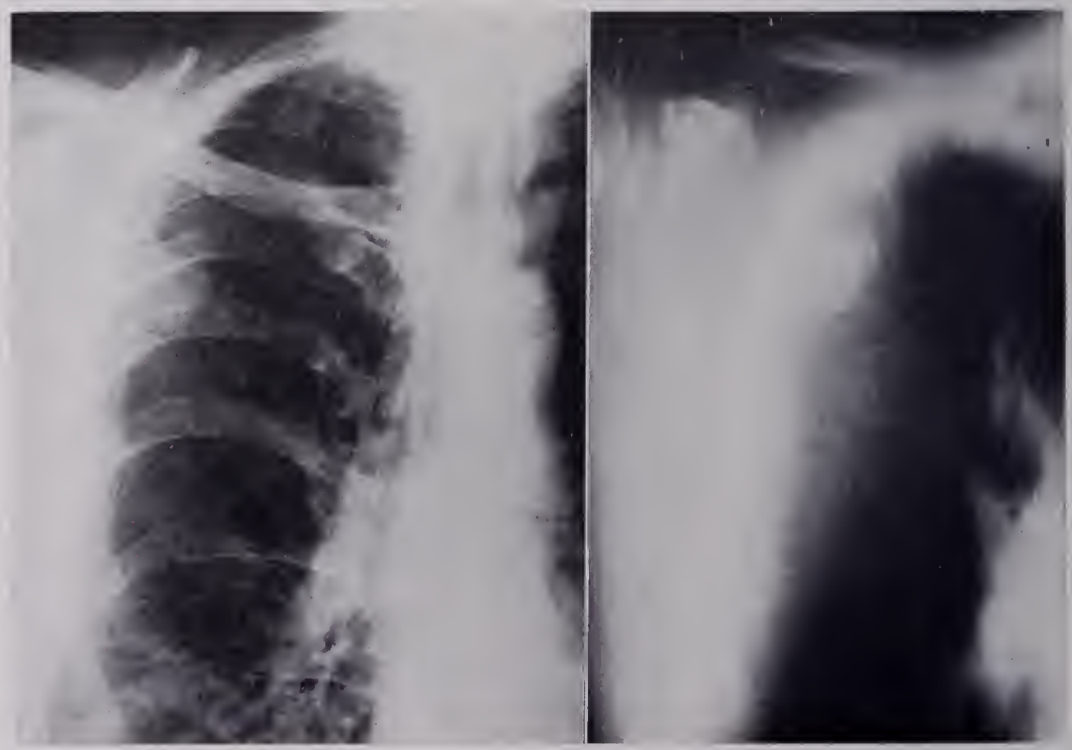


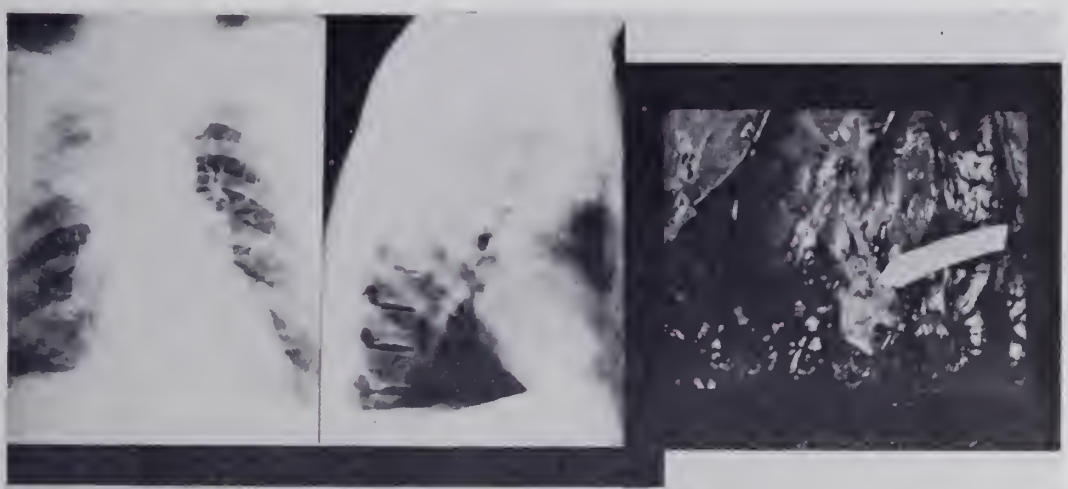
Figure 4. Pulmonary nodule right upper lobe due to bronchogenic carcinoma. Five years survival followed lobectomy.

adequate operations for most pulmonary nodules due to bronchogenic carcinoma. Pneumonectomy is justifiable only if gross lymph node involvement is present.

LOCALIZED LOW GRADE HILAR LESIONS

Localized low grade hilar lesions usually suspected because of symptoms of pneumonitis or hemoptysis may be detected early by the alert clinician by means of roentgenography. Ordinary roentgenograms of the chest or planigrams often readily demonstrate the small shadow of increased density in or near a lobar or segmental bronchus together with a segmental or lobar obstructive pneumonitis (Fig. 5 and 6). Bronchoscopic examination, because of the location of these lesions, is highly productive of confirmatory evidence either by biopsy or cytologic studies of bronchial secretions.

Because the low grade hilar lesions do not metastasize until late and are slowly invasive, lobectomy or lobectomy in combination with a sleeve resection of the main bronchus and bronchial anastomosis [9] often constitutes an adequate operation for this particular type of cancer of the lung. Insistence on the radical procedure of pneumonectomy for this type of lesion is unrealistic in ignoring the biologic character of this particular lesion and the practical considerations of func-



First episode of pneumonitis in a 59 year old man. Study of secretions obtained at bronchoscopy showed atypical cells. Right upper lobectomy. Surgical specimen shows small intraluminal carcinoma in the orifice of the anterior segmental bronchus.



Figure 5. Early, low grade hilar carcinoma, 4 millimeters in size, located in the anterior segmental bronchus of the right upper lobe producing segmental obstructive pneumonitis. Removed by lobectomy two weeks after the onset of the pneumonitis.

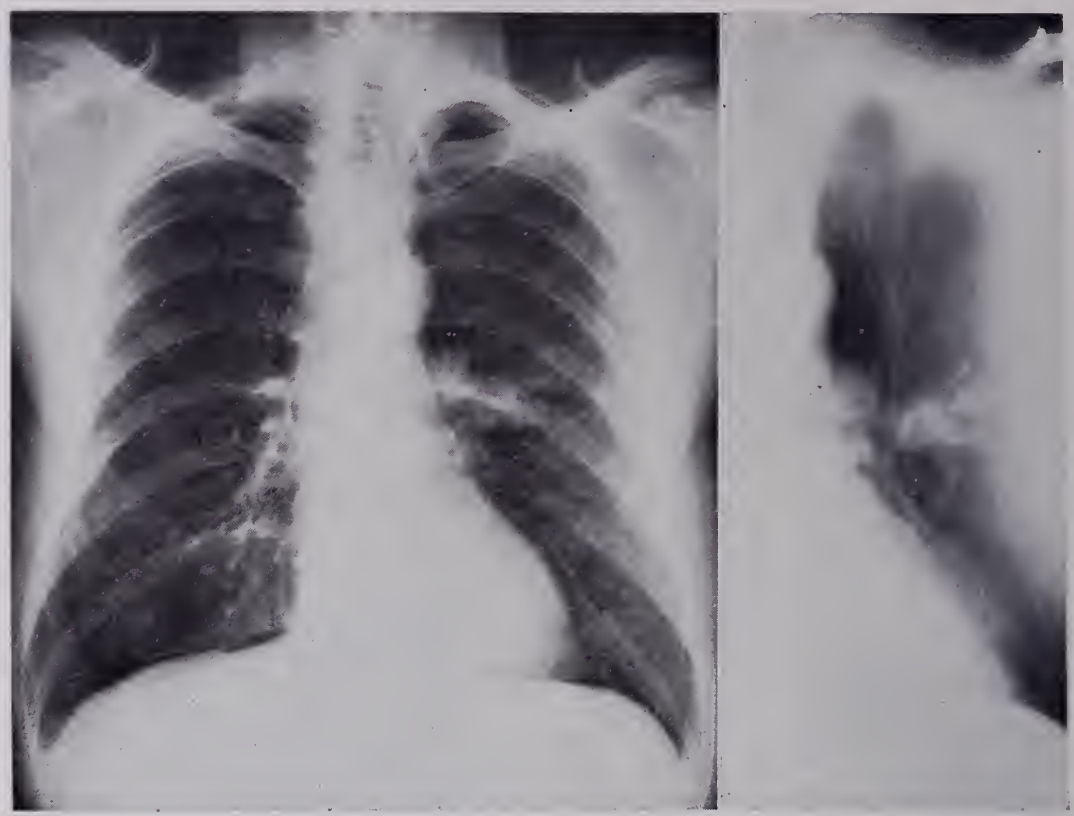


Figure 6. Early, low grade, hilar carcinoma, 5 millimeters in size, located in the anterior segmental bronchus of the left upper lobe producing hemoptysis. Planigrams reveal the carcinoma.

tion of the lung. Survival rates alone are not the only measure of therapeutic effectiveness. The differences in mortality between the radical and conservative approaches and the quality of survival are equally important gauges of therapeutic efficiency. There is a great difference between the patient who survives but is disabled and the one who lives for a similar period of time and is able to continue with normal or near normal activity.

In the interests of preservation of lung tissue we have utilized bronchial resection and anastomosis combined with lobectomy deliberately as an adequate operation for low grade, localized hilar carcinomas in 10 patients and as a compromise with inadequate respiratory reserve in 7 patients (Fig. 7). Although the number of cases is small, the results warrant continued application of the procedure. Fourteen of 16 patients eligible, or 88 per cent, survived one year, and 11 of 14 patients eligible or 80 per cent survived two years.

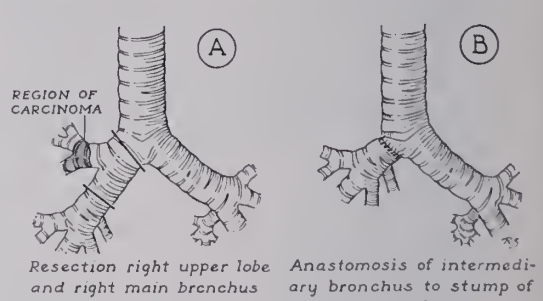


Figure 7. Diagrammatic illustration of combined right upper lobe lobectomy, sleeve resection of right main bronchus and anastomosis of the intermediary bronchus to the trachea for a localized carcinoma in the right upper lobe bronchus.

The corresponding percentages of survival of all our patients having resections were 54 per cent for one year and 35 per cent for two years. These results are consistent with the biologic characteristics of the lesion treated.

SUMMARY

1. Improvement in survival rates following resection for bronchogenic carcinoma depends on a better selection of pa-

tients for surgery based on detection of biologically favorable lesions during an early localized stage.

2. A particular lesion may be early biologically but late chronologically. The term *early* applies more to the degree of localization rather than to its temporal aspects. Early detection is possible only for the biologically favorable lesions.

3. In its proper perspective, time is of great importance in the early detection of the biologically more favorable types of bronchogenic carcinoma, particularly those presenting as a pulmonary nodule and the early, well localized, low grade hilar lesions.

4. Adequate treatment of the early lesion can be accomplished by means of the conservative resection of partial or complete lobectomy with a better quality of survival and a lower mortality rate than are possible with pneumonectomy. Combination of lobectomy with sleeve resection of a main bronchus and bronchial anastomosis constitutes an adequate resection for some low grade hilar lesions.

5. Results of resection of the early bronchogenic carcinoma indicate very favorable survival rates, as high as 70 per cent for two years or more for the pulmonary nodules and the localized hilar lesions.

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OFFICERS OF THE LOUISIANA STATE MEDICAL SOCIETY FOR THE COMING YEAR

The House of Delegates of the Louisiana State Medical Society, at the Seventy-eighth Annual Meeting in Shreveport, in May, elected officers for the coming year of whom the Society may well be proud. They are physicians worthy of the lofty responsibilities and decisions that will come before them. Our Society has a long history of having the men they put into office meet their responsibiilties creditably and perform their duties faithfully.

Dr. Arthur D. Long of Baton Rouge was installed as president. He comes to the position of chief executive of the Society with a supporting experience and much successful achievement in its affairs. He has for years been a respected leader in his society, in the Council, and on many committees. He has been a Councilor in name and fact. His induction into office is accompanied by a feeling of confidence and security that the difficult decisions and grave responsibilities of the Society will be in competent hands.

The President Elect is Dr. W. Robyn Hardy of New Orleans, whom the membership knows well and esteems highly. His years of chairmanship of the House of Delegates and of the Council of Public Relations have provided him with valuable experience and opportunity to show his talents, his ability, and sound judgment.

The first Vice President is Dr. O. B. Owens of Alexandria, who has been Vice Chairman of the House of Delegates, and who has served effectively on many of the most important committees in our organization. He has been honored and respected for his vast knowledge of organizational detail and for his conscientious devotion to his assignments.

The second Vice President, Dr. Boni J. DeLaureal of New Orleans has been long active in the Orleans Parish Medical Society and served as its President and as chairman of committees most capably.

The third Vice President is Dr. James Eddy, Jr., of Shreveport, who was general chairman of the Society's last convention there, and who was responsible for the meticulous details of one of our most pleasant and satisfactory meetings. He will be a welcome addition to the activities of the Executive Committee.

Dr. C. Grenes Cole continues as Secretary-Treasurer, which office he has discharged with singular capability and effectiveness over a period of years. For this office he has a background of sound judgment and experience in organizational affairs seldom seen in any state medical society. The maintenance of our professional position and the progress the Society has

made in years past have been contributed in no small part by the support he has given the officers of the Society and his wise counsel in times when it was needed.

Newly elected to the Council was Dr. Henson S. Coon of Monroe, representing the 5th District. Dr. Coon is a welcome addition who brings to this important body a wealth of experience and a noteworthy record of conscientious performance for his local society.

Dr. Charles B. Odom of New Orleans was named Chairman of the House of Delegates. The Society is happy to have in this position a physician who has had valuable experience in many activities that pertain to medicine, and who has been a stimulating and enthusiastic executive as President of the Orleans Parish Medical Society.

Dr. H. H. Hardy of Alexandria moves to the position of Vice Chairman of the House of Delegates and will continue to render valuable assistance in this situation. As a member of the Council he has served most capably and much to the advantage of the Society over a period of years.

The organizational activities of the Louisiana State Medical Society are vital in maintaining our professional position to a degree that can scarcely be appreciated by those who have not participated. The responsible public looks to the medical profession for guidance in the matters of personal and public health. It is only by maintaining the proper formal and legal relationships to society as a whole that we are able to properly discharge these obligations, and in turn, the effectiveness of our organization depends upon its chosen leaders. The profession can count itself fortunate in the leadership it has selected and supported.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

PRESIDENT'S COUNCIL ON YOUTH FITNESS

The following suggestions to the President, and local Medical Society, have been received from the President's Council on Youth Fitness:

Fitness of individuals has long been among the cherished ideals of the members of the medical profession. Whatever the term by which we call it—fitness, health, well-being—it adds up to "an individual, young or old, prepared to meet the exigencies of present living."

Interest in this thing called **fitness** is not new to physicians. Long have we been deeply concerned with the protection and preparation of the youth of America, for the youth of today are the adults of tomorrow. "The early proceedings of the House of Delegates of the American Medical Association have shown an interest in the fitness of American youth since the Association's organization in 1847." Public health physicians have had an abiding interest and concern for the health protection of youth (as well as adults) since public health medicine was instituted by local government. Even Plato, over two thousand years ago, said, "For the first ten years of life, education shall be predominantly physical; every school is to have a playground; play and sport are to be the entire curriculum; **and, in this decade such health** will be stored up as will make all medicine unneccessary."

Following a conference, to which were invited approximately one hundred fifty participants, among whom were physicians, dentists, public health personnel, educators, coaches, athletes; representatives of organizations interested in amateur and professional sports, and mass publicity media; and persons interested in recreation, camping, the outdoors, and the general areas of youth fitness, a President's Council on Youth Fitness was established. It consists of five Cabinet members: Secretaries of the Interior; Labor; Agriculture; Defense; and Health, Education, and Welfare. Vice President Nixon was first Chairman, but relinquished this post because of pressure of other official duties. Secretary of the Interior, Fred A. Seaton, was made Chairman of the Council. Mr. Shane MacCarthy has been its Executive Secretary since the outset.

Under such auspicious leadership, the American Medical Association was stimulated to renewed interest and vigor in the effort to improve the fitness of American youth. It is an opportunity and challenge to the medical profession.

"Fitness, according to the medical concept, must be based on essential fundamentals of which

the first is good physical and emotional health," states an Editorial in the **"Journal of the American Medical Association."**

"To achieve this end," continues the editorial, "we must have good nutrition, periodic evaluation of health needs, intelligent attention to healthful living at home and in the school, adequate recreation and activity, the development of personal sports, and emotional adjustment to circumstances as they arise. . ."

The opportunity and the challenge to the medical profession is to let its voice be heard and establish the clear and unequivocal position of medicine and public health as to the fitness of American youth. What that policy should be is aptly stated in the editorial mentioned above, "Medicine stands for a broad concept of fitness, as indicated . . . Medicine does not discourage activity, sports, competition, or even a reasonable risk of injury. Medicine recognizes that a fractured ankle may leave less of a scar than a personality frustrated by reason of parental timidity over participation in contact sports. Medicine does recognize, however, that there are contact sports which have for their main purpose, rather than competition and victory, injury to the opponent. Medicine recognizes also that there are contact sports and degrees of competition which are too severe for the immature. In standing out against the abuse of highly desirable exercise and highly necessary competition, medicine in no way objects to activity, competition, and risk, in its proper place. All life is a risk and without courage, life is not worth living."

Many members of the medical profession have given unstintingly of their time and services in countless communities to the cause of youth fitness. The medical profession is ably represented on the President's Citizens Advisory Committee on the Fitness of American Youth. As always, the medical profession may be counted upon to give its wholehearted support and cooperation to worthy projects. The broad program for fitness of American youth as espoused by the President's Council on Youth Fitness is a project of that nature.

"State and local medical societies have an opportunity and an obligation to make known to their communities their interest and willingness to participate in community action toward the greater fitness of American youth."

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

TWENTY-SECOND ANNUAL MEETING THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The twenty-second annual meeting of The New Orleans Graduate Medical Assembly will be held March 2-5, 1959, headquarters at the Roosevelt Hotel.

The following officers and members of the Executive Committee have been elected for this year:

Dr. J. O. Weilbaecher, Jr., President
Dr. Ambrose H. Storck, President-elect
Dr. V. Medd Henington, First Vice-President
Dr. W. E. Kittredge, Second Vice-President
Dr. Ralph M. Hartwell, Third Vice-President
Dr. M. E. St. Martin, Secretary
Dr. Boni J. DeLaureal, Treasurer
Dr. Robert F. Sharp, Director of Program
Dr. L. Sidney Charbonnet, Jr., Assistant Director of Program
Dr. Mannie D. Paine, Jr., Assistant Director of Program

Members of the Executive Committee include Drs. Charles L. Brown (retiring President), Hugh T. Beacham, H. Theo Brierre, Max M. Hattaway and George H. Hauser.

RADIOLOGICAL SOCIETY ELECTS NEW OFFICERS

In May 1958, the Radiological Society of Louisiana held its annual meeting, and the following officers were elected: J. T. Brierre, M. D., President; Jerome J. Romagosa, M. D., Vice-president, and Seymour Ochsner, M. D., Secretary-Treasurer.

ADMINISTRATIVE APPOINTMENTS AT TULANE

Dr. Clifford G. Grulee, assistant dean, became associate dean of Tulane Medical School effective July 1, and Dr. Harold Cummins, who has been both chairman of the department of anatomy and assistant dean, has become assistant dean of medical school admissions, working cooperatively with other divisions of the University in medical alumni relations and development.

Dr. John C. S. Paterson, associate professor of medicine, is now chairman of the department of tropical medicine and public health. Dr. Paterson is a native of Scotland and received the degrees of M.B. and Ch.B. from the University of St. Andrews. In 1947 he became a Member of the Royal College of Physicians, London. He came to the United States in 1949 to attend the University of Rochester in New York under a Commonwealth Fund Fellowship. He then returned to the University of London as tutor in medicine until he joined the faculty of the department of medicine at Tulane in 1953. Dr. Paterson was awarded the M.D. degree with commendation in 1956 for his thesis on diurnal variations in the metabolism of iron. He has done research work in sickle cell disease, metabolism of iron, cerebral circulation and epidemiology of leukemia. Dr. Paterson's wife, Dr. Ruth Paterson, assistant professor of neurology at Tulane, is also a member of the Royal College of Physicians, London.

AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS

A meeting of District VII, American College of Obstetricians and Gynecologists, will be held in Jackson, Mississippi, September 12 and 13, 1958.

The program will be held at the King Edward Hotel, beginning with a fellowship hour on Thursday evening, September 11. There will be a scientific program of papers, round tables, and movies on September 12 and 13. Plans are also being made for the ladies' entertainment.

UROLOGY AWARD

The American Urological Association offers an annual reward of $1000 (first prize of $500, second prize $300 and third prize $200) for essays on the result of some clinical or laboratory research in Urology. Competition is limited to urologists who have been graduated not more than ten years, and to hospital internes and residents doing research work in Urology.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Chalfonte-Haddon Hall, Atlantic City, New Jersey, April 20-23, 1959.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1958.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Applications for certification (American Board of Obstetrics and Gynecology), new and reopened, Part I, and requests for re-examination Part II are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is September 1, 1958. No applications can be accepted after that date. It should be noted by prospective candidates that the deadline date will be August 1, in 1959.

Candidates are requested to write to the office of the Secretary for a current Bulletin if they have not done so in order that they might be well informed as to the present requirements. Application fees ($35.00), photographs, and lists of hospital admissions must accompany all applications.

Robert L. Faulkner, M. D.
2105 Adelbert Road
Cleveland 6, Ohio

THE MARCIA C. NOYES AWARD 1958

William D. Postell, Librarian and Professor of Medical Bibliography, Louisiana State University School of Medicine, New Orleans, has been honored by the receipt of the Marcia C. Noyes Award for outstanding achievement in medical librarianship. The Award was presented to Mr. Postell at the banquet of the Medical Library Association's 57th Annual Meeting at Rochester, Minnesota, June 5, 1958. The Award consisted of a Gorham silver Chippendale 10 inch tray, on which the seal of the Association is engraved.

Previous recipients of the Noyes Award have been: Eileen R. Cunningham, Nashville, Tenn.; James F. Ballard (deceased), Boston, Mass.; Mary Louise Marshall, New Orleans, La.; Janet Doe, New York City; Col. Harold W. Jones (deceased), Washington, D. C.

Mr. Postell has made significant contributions to advance medical library work both at home and abroad. In 1955, the International Cooperation Administration of the Secretary of State's office sought his assistance in organizing a library for the College of Medicine of the National Taiwan University of Taipei, Formosa. He not only did a good job in helping them with their library but proved a fine ambassador as attested by the re-

sponse. Mr. Postell's deeds of service in our own country are countless and in spite of a full schedule, he is never too busy to help with any problem on which he might be approached for advice or assistance. His experience in planning L.S.U.'s medical library made him a valuable consultant when the Houston Medical Center Library was built, and he made an additional contribution in conducting the refresher course on Architecture for members attending the 1958 Medical Library Association Meeting. He was invited by the school authorities of the University of Pittsburgh to assist in planning their medical library program, and he has helped with advice and guidance in many other instances.

In advancing standards of library service, Mr. Postell should be cited for his many helpful contributions to the literature. An exceptionally useful tool for teaching and reference is bis hook, **Applied Medical Bibliography for Students** (1954). Other books and articles indicate that his "precepts of medical librarianship" constitute a credo, which when put to a test strengthen the status of the profession and its contribution to scientific progress.

When one considers the scope of the Medical Library Association's fine program and its tremendous influence in unifying and strengthening medical libraries the world over, special tribute seems due to those who have charted its course and who have directed or participated in its innumerable activities. Bill Postell has made tangible contributions to the Association's work and has served it in many capacities: as president in 1952-53, and at varying times as member of the Board of Directors, as editor of the **Bulletin**, and on numerous important committees. A special satisfaction comes with the privilege of honoring such a colleague while he is still striving and has not yet reached his peak of accomplishments. Measured by the past, the future should be a rewarding one.

E. Louise Williams
Chairman, Awards Committee
Medical Library Association

SOCIAL SECURITY

Social Security Says: "There is no provision in the law which permits a refund of social security taxes paid if you do not have enough work under the law to get social security payments."

In other words: Your uncollectable "contribution" goes to charity, and not "insurance."

Social Security Says: "A woman who becomes entitled to benefits based on her own earnings and also the wife's benefits on the earnings of her husband would receive no more than the larger of the two amounts. A child who becomes entitled to child's benefits based on earnings of both his father and mother would not receive both payments."

In other words: Double social security taxes paid by one family do not produce benefits for each member paying the taxes. A part of the taxes go to "charity."

ANNUAL ASSEMBLY IN OTOLARYNGOLOGY

The Department of Otolaryngology, University of Illinois College of Medicine, announces its Annual Assembly in Otolaryngology from September 29 through October 5, 1958. The Assembly will consist of an intensive series of lectures and panels concerning advancements in otolaryngology, and evening sessions devoted to surgical anatomy of the head and neck and histopathology of the ear, nose and throat.

Interested physicians should write direct to the Department of Otolaryngology, 1853 West Polk Street, Chicago 12, Illinois.

A.M.A. SUPPORTS LEGISLATION FOR HANDLING AVIATION MEDICINE

The American Medical Association recently announced its active support of legislation pending before Congress which would establish a separate medical office within the Civil Aeronautics Administration.

In a letter to Sen. Warren G. Magnuson, chairman of the committee on interstate and foreign commerce, Dr. F. J. L. Blasingame, A.M.A. general manager, said, "The American Medical Association is seriously concerned with the present state of civil aviation insofar as medical matters are concerned."

He continued, "Increasing air traffic and the jet age, accompanied by increased physical demand on pilots, require a substantial revision in the present method of handling many aspects of aviation medicine."

Specifically, the A.M.A. is urging passage of Senate Bill 1045 which is before Senator Magnuson's committee.

Dr. Blasingame pointed out that the A.M.A. now has a permanent committee on aviation medicine, and that the association's support of the bill is based on the recommendations of that committee.

SECOND OKLAHOMA COLLOQUY ON ADVANCES IN MEDICINE

The Second Oklahoma Colloquy on Advances in Medicine will be held on November 12, 13, 14 and 15. It will be devoted to Arthritis and Related Disorders and is under the joint sponsorship of the Department of Medicine, University of Oklahoma, the Division of Postgraduate Education, Geigy Pharmaceuticals, Wyeth Laboratories, The Upjohn Company, Pfizer Laboratories, and Schering Corporation.

Twelve nationally prominent investigators in their field will participate and present the results of original work from their laboratories. Among the guest speakers will be:

Alfred Jay Bollet, M. D., Assistant Professor of Medicine, Wayne University College of Medicine, Detroit, Michigan.

R. H. Follis, Jr., M. D., Armed Forces Institute of Pathology, Walter Reed Army Medical Center, Washington, D. C.

Robert A. Good, M. D., American Legion Memorial Heart Research Professor of Pediatrics, University of Minnesota, Minneapolis.

Alexander B. Gutman, M. D., Director, Department of Medicine, The Mount Sinai Hospital, New York.

Ralph Heimer, Ph.D., Department of Rheumatology, Hospital for Special Surgery, New York.

C. H. Slocumb, M. D., Mayo Clinic, Rochester, Minnesota.

John H. Talbott, M. D., Professor of Medicine, University of Buffalo School of Medicine, Buffalo, New York.

Morris Ziff, M. D., Associate Professor of Medicine, New York University College of Medicine, New York.

On November 15 the University of Oklahoma football team will play the University of Missouri at Norman, Oklahoma. Registrants may apply for tickets by writing the Athletic Ticket Office, University of Oklahoma, Norman, Oklahoma.

Registration will be open to all physicians. Further information may be obtained by writing to the Division of Postgraduate Education, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.

DRUGS FOUND EFFECTIVE AGAINST RESISTANT STAPHYLOCOCCI

Hospitals are faced with the difficult problem of dealing with serious staphyloccal infections—due to increasing resistance of the organisms to antibiotics as well as the failure to employ rigid aseptic technics and to the growing numbers of patients susceptible to these infections.

To help provide a rationale for the selection of drugs to combat staph infections, Dr. Burton A. Waisbren, Assistant Clinical Professor of Medicine at Marquette University School of Medicine, has conducted a definitive five-year study of the effectiveness of 13 antibacterial agents against 500 strains of staphylococci at the Milwaukee County General Hospital.

Only two drugs—the antibiotic, neomycin, and nitrofurantoin (Furadantin®, Eaton) were effective against more than 90 per cent of the various staph strains. The figure for neomycin was 96 per cent and for Furadantin, 95 per cent, Effectiveness of other antibiotics ranged from 89 per cent for vancomycin to 25 per cent for penicillin. The broad spectrum antibiotics like chlortetracycline, oxytetracycline, streptomycin and the tetracyclines were all less than 50 per cent effective.

POISON IVY PROTECTION

Nature lovers and outdoor workers need no longer fear poison ivy or poison oak. The centuries-old battle against these plants has been won by a woman chemist, and her new-type, harmless and painless method of immunization is now being made commercially available on a nationwide scale for the first time. The product, called Aqua Ivy, was perfected by Miss Margaret Strauss, director of the allergy laboratory at University Hospital, New York University—Bellevue Medical Center. It has been thoroughly tested for ten years by a group of physicians using it on more than 1,000 patients. Highly satisfactory results have been reported in a series of articles in medical journals, and no side effect has ever resulted.

National distribution of Aqua Ivy has just been started by the Allergens Division of Chemical Specialties Co., Inc., Charles Szechenyi, president announced. It will be distributed throughout America and in southeastern Canada where the poisonous plants flourish.

Clinical tests have proved Aqua Ivy to be effective on 93% of those using it and without side effects because of the new way in which it is made. This was shown in a careful study perpared by Dr. Richard E. Passenger of Newburgh, N. Y., with 121 patients and reported in the "Journal of Allergy" (September, 1956).

"SILENT" MYOCARDIAL INFARCTION RATES HIGHER THAN EXPECTED

The number of unsuspected healed myocardial infarctions, a type of heart attack, found in a recent study of 5,000 autopsy reports was "astonishing," two Michigan doctors said.

Analysis of 5,000 consecutive autopsies performed at the Wayne County General Hospital, Eloise, Mich., between 1945 and 1955 showed 588 myocardial infarctions of which 175 had been unsuspected.

Drs. S. E. Gould and L. P. Cawley, Eloise, said "It is astonishing that the incidence of old healed 'silent' infarcts should be as high as 3.5 per cent of all autopsies. This represents 30 per cent of all infarcted hearts encounted at autopsy."

This finding indicates that a myocardial infarct is often well tolerated by the patient, the doctors said.

The average age of these 175 patients with old, unsuspected infarcts was 71 years. They had lived out their expected life span even though they had had an unsuspected heart disorder.

Principal causes of death were pulmonary disease, 47; cardiac disease, 39; neoplastic disease, 34; vascular disease, 31, and, miscellaneous, 24.

The report appears in the March Archives of Internal Medicine, a publication of the American Medical Association.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

Mrs. Albert W. Habeeb, newly installed president of the Woman's Auxiliary to the Orleans Parish Medical Society, has appointed the following members to serve as committee chairmen on the executive board for the season 1958-59.

Mrs. Monte Meyer, Budget; Mrs. Francis X. Lothschuetz, Clothes collection and samples; Mrs. Benjamin F. Parker, Commemoration; Mrs. Daniel W. Beacham, Contact; Mrs. Charles Lafayette Brown, Graduate Medical Assembly Convention; Mrs. Eugene H. Countiss, La. State Medical Society Convention; Mrs. C. Grenes Cole, Southern Medical Society Convention; Mrs. Albert B. Pavy, Jr. Courtesy; Mrs. Boni J. DeLaureal, Doctor's Day; Mrs. Charles R. Robinson, Essay Contest; Mrs. William W. Frye, Historian; Mrs. Daniel W. Hayes, Hostesses; Mrs. J. Morgan Lyons, Legislation (LOSL); Mrs. Charles Farris, Jr., Membership; Mrs. Julius T. Davis, Jr., Notifications and Periodic Health; Mrs. James E. Bailey, Printing; Mrs. Carl J. Gulotta, Program; Mrs. Mercer G. Lynch, Publications; Mrs. Branch J. Aymond, Publicity; Mrs. Rufus W. Alldredge, Public Relations; Mrs. Spencer B. McNair, Recruitment; Mrs. William S. Neal, Registration; Mrs. Nathan Gisclair, Telephone; Mrs. Robert Kelleher, Volunteer Services.

Mrs. Branch J. Aymond,
Publicity Chairman.

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BOOK REVIEWS

The Physician's Own Library; by Mary Louise Marshall, Springfield, Illinois, Charles C Thomas, c1957. 87 pp. Price $3.00.

In recent years medical libraries have assumed a more important role in medical teaching, research and practice due to the change in educational methods, and the enormous advances made in the art and science of medicine. To keep abreast of his times, every physician needs to have access to books. Although large libraries are essential, the doctor's library also fills a need as pointed out by Mary Louise Marshal in her book *The Physician's Own Library.* Today, even private collections of books are so large that some formal organization is necessary to enable the busy practitioner to make use of his books. Miss Marshall has outlined for the physician, who is faced with the problem of organizing his collection, some of the basic library techniques that he can employ to advantage. The chances are the physician will not feel called upon to read the entire book, but will consult it for special problems such as the handling of reprints, borrowing privileges from libraries and the physical care of books. This should prove a useful and informative monograph to the physician who plans to have a library of his own, and also, it could well serve as a guide to small institutional libraries.

William D. Postell

PUBLICATIONS RECEIVED

Bailliere, Tindall & Cox, London: Aids to Medical Diagnosis, by G. E. F. Sutton, M.D. (8th edit.)

Doubleday & Co., N. Y.: Love, Skill & Mystery, A Handbook to Marriage, by Theodor Bovet.

Grune & Stratton, Inc., N. Y.: Progress in Arthritis, by John H. Talbott, M.D., and L. Maxwell Lockie, M.D.; Psychoendocrinology, edited by Max Reiss, M.D.; Ophthalmic Plastic Surgery, by Sidney A. Fox, M.D. (2nd edit.); Advances in Electrocardiography, Charles E. Kossmann, Editor; Progress in Psychotherapy—Volume III. Techniques of Psychotherapy, edited by Jules H. Masserman, M.D., and J.L. Moreno, M.D.; Science and Psychoanalysis, Volume I. Integrative Studies, edited by Jules H. Masserman, M.D.; Cardiovascular Diseases, by David Scherf, and Linn J. Boyd, M.D. (3rd edit.).

Paul B. Hoeber, Inc., N. Y.: Electrocardiographic Analysis, Volume I, Biophysical Principles of Electrocardiography, by Robert H. Bayley, M.D.

Intercontinental Medical Book Corp., N. Y.: Diseases of the Thyroid and Parathyroid Glands, by Bernard J. Ficarra, M.D.

Lange Medical Publications, Los Altos, Calif.: Correlative Neuroanatomy and Functional Neurology, by Joseph G. Chusid, M.D., and Joseph J. McDonald, M.D.

Little, Brown & Co., Boston: A Primer on Common Functional Disorders, by Jack W. Fleming, M.D.

The C. V. Mosby Co., St. Louis: Pediatric Index, by Edwin F. Patton, M.D.

Philosophical Library, N. Y.: Maimonides The Preservation of Youth, translated from the original Arabic (Fi Tadbir As-Sihha), with an Introduction by Hirsch L. Gordon, Ph.D.; Crime and Insanity, edited by Richard W. Nice.

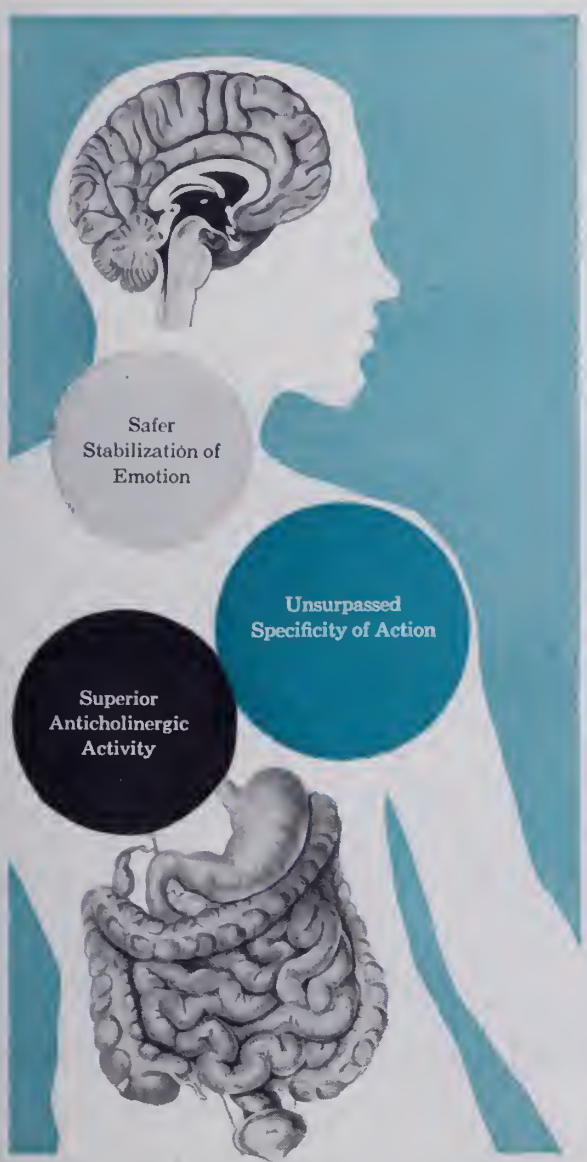
W. B. Saunders Co., Phila.: Diagnostic Medical Parasitology, by Edward K. Markell, M.D., and Marietta Voge, Ph.D.

Vantage Press, Inc., N. Y.: Cancer and the Atomic Age, by Clement A. Tavares, M. D.; Memoirs of a G. P., by Otis Marshall, M.D.

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Pro-Banthine has won wide clinical acceptance as the most effective drug for controlling gastrointestinal hypermotility and hypersecretion.

Dartal, a new phenothiazine congener, offers greater safety, flexibility and effectiveness in stabilizing emotional agitation.

The combination of each drug in fully effective doses in Pro-Banthine with Dartal gives a new means of approach to the medical management of functional gastrointestinal disorders mediated by the parasympathetic nervous system.

Specific Clinical Applications: Functional gastrointestinal disturbances, gastritis, pylorospasm, peptic ulcer, spastic colon (irritable bowel), biliary dyskinesia.

Dosage: One tablet three times a day.

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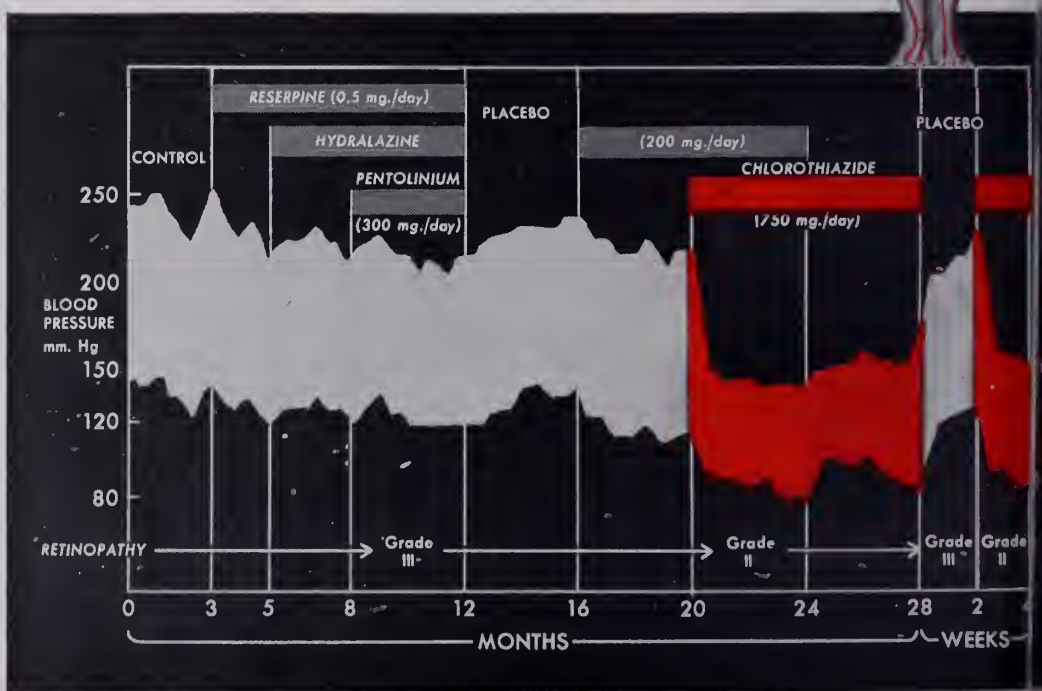
Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

"Chlorothiazide added to other antihypertensive drugs reduced the blood pressure in 19 of 23 hypertensive patients." "All of 11 hypertension subjects in whom splanchnicectomy had been performed had a striking blood pressure response to oral administration of chlorothiazide." ". . . it is not hypotensive in normotensive patients with congestive heart failure, in whom it is markedly diuretic; it is hypotensive in both compensated and decompensated hypertensive patients (in the former without congestive heart failure, it is not markedly diuretic, whereas in the latter in congestive heart failure, it is markedly diuretic). . . ."



Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

"Chlorothiazide (maintenance dose, 0.5 Gm. twice daily) added to the regimen of 73 ambulatory hypertensive patients who were receiving other antihypertensive drugs as well caused an additional reduction [16%] of blood pressure." "The advantages of chlorothiazide were (1) significant antihypertensive effect in a high percentage of patients, particularly when combined with other agents, (2) absence of significant side effects or toxicity in the dosages used, (3) absence of tolerance (at least thus far), and (4) effectiveness with simple 'rule of thumb' oral dosage schedules."



In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension," Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8: 1, September, 19

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as simple as 1-2-3

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2 **ADJUST DOSAGE OF OTHER AGENTS.** The dosage of other antihypertensive medication (reserpine, veratrum, hydralazine, etc.) is adjusted as indicated by patient response. If the patient is established on a ganglionic blocking agent (e.g., 'INVERSINE') this should be continued, but the total daily dose should be immediately reduced by as much as 25 to 50 per cent. This will reduce the serious side effects often observed with ganglionic blockade.

3 **ADJUST DOSAGE OF ALL MEDICATION.** The patient must be frequently observed and careful adjustment of all agents should be made to determine optimal maintenance dosage.

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Charles L. Bloss, M. D., Medical Director
Howard M. Burkett, M. D., Associate Psychiatrist
James K. Peden, M. D., Associate Psychiatrist
Ward G. Dixon, M. D., Associate Psychiatrist
Jerry M. Lewis, Jr., M. D., Associate Psychiatrist
C. L. Jackson, M. D., Associate Psychiatrist
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Albert F. Riedel, Jr., M. D., Resident Psychiatrist
Belvin A. Simmons, M. D., Resident Psychiatrist
E. Clay Griffith, M. D., Resident Psychiatrist

Frances Campbell, R.N., B.S., Director of Nurses
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Ralph M. Barnette, Jr., Business Manager



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why PETN? *For cardiac effect:* PETN is ". . . the most effective drug currently available for prolonged prophylactic treatment of angina pectoris."[1] Prevents about 80% of anginal attacks.

why ATARAX? *For ataractic effect:* One of the most effective—and probably the safest—of tranquilizers, ATARAX frees the angina patient of his constant tension and anxiety. Ideal for the on-the-job patient. And ATARAX has a unique advantage in cardiac therapy: it is anti-arrhythmic and non-hypotensive.

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1. Russek, H. I.: Postgrad. Med. *19*:562 (June) 1956.

Dosage and Supplied: Begin with 1 to 2 yellow CARTRAX "10" tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. When indicated this may be increased by switching to pink CARTRAX "20" tablets (20 mg. PETN plus 10 mg. ATARAX.) For convenience, write "CARTRAX 10" or "CARTRAX 20." In bottles of 100.

CARTRAX should be taken 30 to 60 minutes *before* meals, on a continuous dosage schedule. Use PETN preparations with caution in glaucoma.

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Combines ACHROMYCIN V with NYSTATIN

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CAPSULES contain 250 mg. tetracycline HCl equivalent (phosphate-buffered) and 250,000 units Nystatin. ORAL SUSPENSION (cherry-mint flavored) Each 5 cc. teaspoonful contains 125 mg. tetracycline HCl equivalent (phosphate-buffered) and 125,000 units Nystatin.

DOSAGE:

Basic oral dosage (6-7 mg. per lb. body weight per day) in the average adult is 4 capsules or 8 tsp. of ACHROSTATIN V per day, equivalent to 1 Gm. of ACHROMYCIN V.

ACHROSTATIN V combines ACHROMYCIN† V ... the new rapid-acting oral form of ACHROMYCIN† Tetracycline ... noted for its outstanding effectiveness against more than 50 different infections ... and NYSTATIN ... the antifungal specific. ACHROSTATIN V provides particularly effective therapy for those patients prone to monilial overgrowth during a protracted course of antibiotic treatment.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, N. Y.

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Lederle

TAKE A NEW LOOK AT FOOD ALLERGENS*–TAKE A LOOK AT NEW DIMETANE

*Sea food—source of highly potent allergens. Typical are: lobster; tuna; sturgeon roe; fish oil used to prepare leather, chamois, soaps; cuttlefish bone for polishing material and tooth powder; glues made from fish products.

In a recent 140-patient study[1] DIMETANE gave "more relief or was superior to other antihistamines," in 63, or 45% of a group manifesting a variety of allergic conditions. Gave good to excellent results in 87%. Was well tolerated in 92%. Only 11 patients (8%) experienced any side reactions and 5 of these could not tolerate any antihistamines.

1. Thomas, J. W.: Ann. Allergy *16*:128, 1958

DIMETANE Extentabs (12 mg. each, coated) provide antihistamine effects daylong or nightlong for 10-12 hours. Tablets (4 mg. each, scored) or pleasant-tasting Elixir (2 mg./5 cc.) may be prescribed t.i.d. or q.i.d., or as supplementary dosage to Extentabs in acute allergic situations. A. H. ROBINS CO., INC., Richmond 20, Virginia. Ethical Pharmaceuticals of Merit Since 1878.

Robins

(PARABROMDYLAMINE MALEATE)

Dimetane®

EXTENTABS® • TABLETS • ELIXIR





little How to win friends ...

The Best Tasting Aspirin you can prescribe.

The Flavor Remains Stable down to the last tablet.

25¢ Bottle of 48 tablets (1¼ grs. each).



We will be pleased to send samples on request.

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for
2-dimensional
menopausal
therapy



manages both the psychic and somatic symptoms
and *relieves* emotional stress in the menopause
treats somatic disturbances due to ovarian decline

Milprem*

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MILTOWN® A PROVEN TRANQUILIZER + CONJUGATED ESTROGENS (EQUINE) A PROVEN ESTROGEN

SUPPLIED: Bottles of 60 tablets.

EACH TABLET CONTAINS: Miltown® (meprobamate, Wallace) .....400 mg.
2-methyl-2-n-propyl-1,3-propanediol dicarbamate
Conjugated Estrogens (equine) .....0.4 mg.

DOSAGE: One tablet t.i.d. in 21-day courses with one week rest periods. Should be adjusted to individual requirements.

Literature and samples on request.

® WALLACE LABORATORIES, *New Brunswick, N.J.*

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'CARDILATE'*

for THE PROPHYLAXIS OF ANGINA PECTORIS

'Cardilate' tablets  shaped for easy retention in the buccal pouch

"... the degree of increase in exercise tolerance which sublingual erythrol tetranitrate permits, approximates that of nitroglycerin, amyl nitrite and octyl nitrite more closely than does any other of the approximately 100 preparations tested to date in this laboratory."

"Furthermore, the duration of this beneficial action is prolonged sufficiently to make this method of treatment of practical clinical value."

Riseman, J. E. F., Altman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites in the Treatment of Angina Pectoris. Circulation (Jan.) 1958.

* 'Cardilate' brand Erythrol Tetranitrate SUBLINGUAL TABLETS, 15 mg. scored



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Nasal Spray

CONVENIENT NONBREAKABLE SQUEEZE BOTTLE

A physiologically balanced formulation of three well known and widely used compounds:

Neo-Synephrine® HCl, 0.5%
dependable decongestant

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wetting agent and antibacterial

DELIVERS FINE EVEN SPRAY
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Rapidly Effective
No Antibiotic Sensitization



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NTZ, Neo-Synephrine (brand of phenylephrine), Thenfadil (brand of thenyldiamine) and Zephiran (brand of benzalkonium chloride, refined), trademarks reg. U.S. Pat. Off.

The Achievements of Aris

...in Skin Diseases: In a study of 26 patients with severe dermatoses, ARISTOCORT was proved to have potent anti-inflammatory and antipruritic properties, even at a dosage only ⅔ that of prednisone[1]... Striking affinity for skin and tremendous potency in controlling skin disease, including 50 cases of psoriasis, of which over 60% were reported as *markedly improved*[2]...absence of serious side effects specifically noted.[1,2,3]

...in Rheumatoid Arthritis: Impressive therapeutic effect in most cases of a group of 89 patients[4]... 6 mg. of ARISTOCORT corresponded in effect to 10 mg. of prednisone daily (in addition, gastric ulcer which developed during prednisone therapy in 2 cases disappeared during ARISTOCORT therapy).[5]

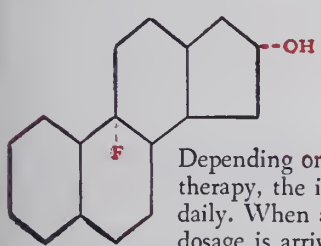
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2. Shelley, W. B., and Pillsbury, D. M.: Personal Communication.
3. Sherwood, A., and Cooke, R. A.: Personal Communication.
4. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957.
5. Hartung, E. F.: Personal Communication.
6. Schwartz, E.: Personal Communication.
7. Sherwood, A., and Cooke, R. A.: J. Allergy 28:97, 1957.
8. Hellman, L., Zumoff, B., Kretshmer, N., and Kramer, B.: Paper presented at Nephrosis Conference, Bethesda, Md., Oct. 26, 1957.
9. Ibid.: Personal Communication.
10. Barach, A. L.: Personal Communication.
11. Segal, M. S.: Personal Communication.
12. Cooke, R. A.: Personal Communication.
13. Dubois, E. L.: Personal Communication.

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Triamcinolone LEDERLE

...in Respiratory Allergies: "Good to excellent" results in 29 of 30 patients with chronic intractable bronchial asthma at an average daily dosage of only 7 mg.[6]... Average dosage of 6 mg. daily to control asthma and 2 to 6 mg. to control allergic rhinitis in a group of 42 patients, with an actual reduction of blood pressure in 12 of these.[7]

...in Other Conditions: Two failures, 4 partial remissions and 8 cases with complete disappearance of abnormal chemical findings lead to characterization of ARISTOCORT as possibly the most desirable steroid to date in treatment of the nephrotic syndrome.[8,9]... Prompt decrease in the cyanosis and dyspnea of pulmonary emphysema and fibrosis, with marked improvement in patients refractory to prednisone.[10,11,12]... Favorable response reported for 25 of 28 cases of disseminated lupus erythematosus.[13]



Depending on the acuteness and severity of the disease under therapy, the initial dosage of ARISTOCORT is usually from 8 to 20 mg. daily. When acute manifestations have subsided, maintenance dosage is arrived at gradually, usually by reducing the total daily dosage 2 mg. every 3 days until the smallest dosage has been reached which will suppress symptoms.

Comparative studies of patients changed to ARISTOCORT from prednisone indicate a dosage of ARISTOCORT lower by about ⅓ in rheumatoid arthritis, by ⅓ in allergic rhinitis and bronchial asthma, and by ⅓ to ½ in inflammatory and allergic skin diseases. With ARISTOCORT, no precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

ARISTOCORT is available in 2 mg. scored tablets (pink), bottles of 30; and 4 mg. scored tablets (white), bottles of 30 and 100.

Lederle LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

when you treat hypertensive patients

double duty RAUDIXIN

Squibb Standardized Whole Root Rauwolfia Serpentina

is the solid base line for successful therapy



Raudixin helps you relieve pressures in your patients

Raudixin "lowers blood pressure and slows the pulse rate much more efficiently than the barbiturates. . . . It is not habit-forming and is synergistic with all other known hypotensive drugs."*

Raudixin helps you relieve pressures on your patients

Raudixin "relieves anxiety and tension, particularly the tension headache of the mild hypertensive patient, better than any other drug."*

RAUDIXIN..."is the best symptom reliever."*

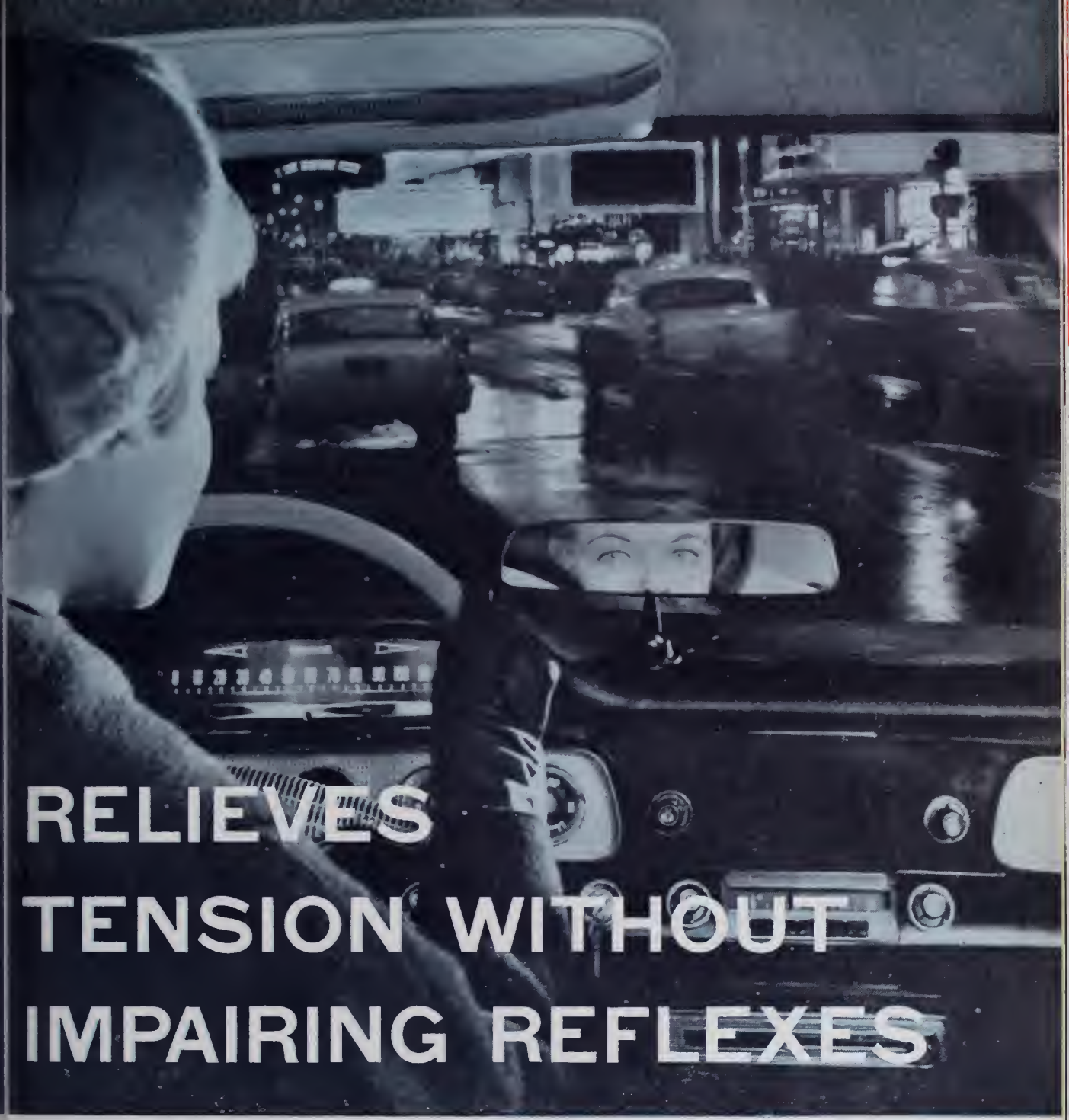
In mild to moderate cases, Raudixin is frequently sufficient.

Base line therapy with Raudixin permits lower dosage of more toxic agents. The incidence and side effects of these agents are minimized. Diuretics often potentiate the antihypertensive effect of Raudixin.

*Finnerty, F. A. Jr.: New York State J. Med. 57:2957 (Sept. 15) 1957.

SQUIBB CENTENNIAL 1858 1958 SQUIBB *Squibb Quality—the Priceless Ingredient*

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"Even in double the usual dosage, [Miltown] produces no behavioral toxicity in our subjects as measured by our tests of driving, steadiness, and vision."*

Relieves anxiety, tension and muscle spasm in everyday practice

- with unexcelled safety
- without impairing autonomic function

Miltown®

meprobamate (Wallace)

Usual Dosage:
One or two
400 mg. tablets t.i.d.

Supplied:
400 mg.
scored tablets,
200 mg.
sugar-coated
tablets,
bottles of 50.

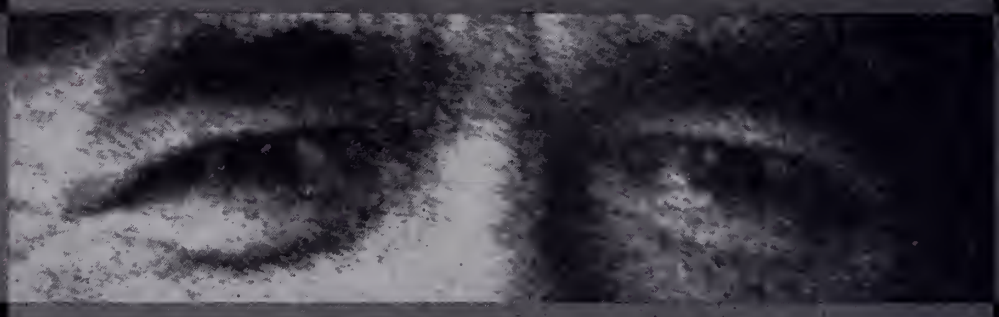
*Marquis, D. G., Kelly, E. L., Miller, J. G., Gerard, R. W. and Rapoport, A.: Ann. New York Acad. Sc. 67: 701, May 9, 1957.

WALLACE LABORATORIES, *New Brunswick, N. J.*

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CLINICAL BRIEFS FOR MODERN PRACTICE



what are the 7 "don'ts" of office psychotherapy?

(1) Don't argue—let patient "talk out" his troubles. (2) Don't counsel—help him solve his own problems. (3) Don't be hostile—allow patient to express hostility without reciprocating. (4) Don't be unsure—stress significance of normal or abnormal physical findings in relation to symptoms. (5) Don't be too reassuring—overoptimism may suggest you take the symptoms too lightly. (6) Don't approve or censure. (7) Don't be too credulous—patients' words may conceal hidden meanings.

Source—Hyman, M.: Some Aspects of Psychiatry in General Practice, GP *16*:83 (Oct.) 1957.

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Ectylurea, AMES
(2-ethyl-*cis*-crotonylurea)

for tranquil—not "tranquilized" patients

"Anxiety and nervous tension states appeared to be most benefited....The patients experienced and expressed a feeling of greater inward security, serenity....Mental depression, one of the undesirable side actions in many other sedatives, did not develop in any of the patients...."*

*Bauer, H. G.; Seegers, W.; Krawzoff, M., and McGavack, T. H.: A Clinical Evaluation of Ectylurea (NOSTYN®), in press.

dosage: *Children*—150 mg. (½ tablet) three or four times daily. *Adults*—150-300 mg. (½ to 1 tablet) three or four times daily.

supplied: 300 mg. scored tablets; bottles of 48 and 500.

AMES COMPANY, INC · ELKHART, INDIANA
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for adults and children



Prompt 4 way check of diarrhea

- Curbs excessive peristalsis
- Adsorbs toxins and gases
- Soothes inflamed mucosa
- Provides intestinal antisepsis

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Liquid

EFFECTIVE ANTIDIARRHEAL

FORMULA: *Each 15 cc. (tablespoon) contains:*

Sulfaguanidine	2 Gm.
Pectin	225 mg.
Kaolin	3 Gm.
Opium tincture	0.08 cc.
(equivalent to 2 cc. paregoric)	

DOSAGE: Adults: Initially 1 or 2 tablespoons from four to six times daily, or 1 or 2 teaspoons after each loose bowel movement; reduce dosage as diarrhea subsides.

Children: ½ teaspoon (=2.5 cc.) per 15 lb. of body weight every four hours day and night until stools are reduced to five daily, then every eight hours for three days.

SUPPLIED: *Bottles of 16 fl. oz.*
Exempt Narcotic. Available on Prescription Only.

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Faster rehabilitation in a

Joint inflammation and muscle spasm are the two elements most responsible for disability in rheumatic-arthritic disorders—and MEPROLONE is the one agent that treats both.

MEPROLONE suppresses the inflammatory process and simultaneously relieves aching and stiffness caused by muscle spasm, to provide greater therapeutic benefits and a shorter rehabilitation period than any single antirheumatic-antiarthritic agent.

MEPROLONE-2 is indicated in cases of severe involvement, yet often leads to a reduction of steroid dosage because of its muscle-relaxant action. When involvement is only moderately severe or mild, MEPROLONE-1 may be indicated.

SUPPLIED: Multiple Compressed Tablets in three formulas: MEPROLONE-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 100). MEPROLONE-1 supplies 1.0 mg. prednisolone in the same formula as MEPROLONE-2 (bottles of 100). MEPROLONE-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 30).

Because muscles move joints, both muscle spasm and joint inflammation must be considered in treating the rheumatic-arthritic patient . . .



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Rheumatoid Arthritis

multiple compressed tablets

MEPROLONE®

THE FIRST MEPROBAMATE-PREDNISOLONE THERAPY



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MEPROLONE is the one antirheumatic-antiarthritic that exerts a simultaneous action to relax muscles in spasm and to suppress joint inflammation . . .

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Therefore, MEPROLONE does more than any single agent to help the physician shorten the time between disability and employability.



MEPROLONE is a trade-mark of Merck & Co., Inc.

For Speedier Return to Normal Nutrition

Meat...

and the Protein Depletion of Severe Infectious Disease

Recovery from severe infectious processes entails more than emergence from the effects of the causative agent. The semistarvation, the inactivity, the suppression of physiologic activity must all be corrected as rapidly and thoroughly as can be tolerated by the patient.

Return to normal nutrition can be speeded by an easily digested diet high in top quality protein and vitamin-mineral components.

Lean meat serves several purposes in such a program: It supplies easily digested protein of highest biologic quality for rapid re-establishment of nitrogen balance; it provides the gamut of B vitamins as well as certain minerals important to sound nutrition, and it brings appetite-stimulating flavor to meals, a consideration not to be underestimated in the psychic rehabilitation of appetite.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago...Members Throughout the United States



running noses . . .



and other hay fever symptoms

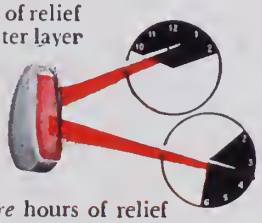
TRIAMINIC stops rhinorrhea, congestion and other distressing symptoms of summer allergies, including hay fever. Running nose, watery eyes and sneezing are best relieved by antihistamine *plus* decongestant action – systemically – with TRIAMINIC.

This new approach frequently succeeds where less complete therapy has failed. It is not enough merely to use histamine antagonists; ideally, therapy must be aimed also at the congestion of the nasal mucosa. Triaminic provides such effective combined therapy in a single timed-release tablet.

TRIAMINIC brings relief in minutes—lasts for hours. Running noses stop, congested noses open—and stay open for 6 to 8 hours.

Triaminic provides around-the-clock freedom from allergic congestion with just one tablet t.i.d. because of the special timed-release design.

first—3 to 4 hours of relief from the outer layer



then—3 to 4 *more* hours of relief from the inner core

Dosage: One tablet in the morning, mid-afternoon and at bedtime. In postnasal drip, one tablet at bedtime is usually sufficient.

Each timed-release TRIAMINIC Tablet contains:

Phenylpropanolamine HCl	50 mg.
Pheniramine maleate	25 mg.
Pyrilamine maleate	25 mg.

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TRIAMINIC Juvelets*, providing easy-to-swallow half-dosages for the 6- to 12-year-old child, with the timed-release construction for prolonged relief.

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TRIAMINIC Syrup, for those children and adults who prefer a liquid medication. Each 5 ml. teaspoonful is equivalent to ¼ Triaminic Tablet or ½ Triaminic Juvelet.

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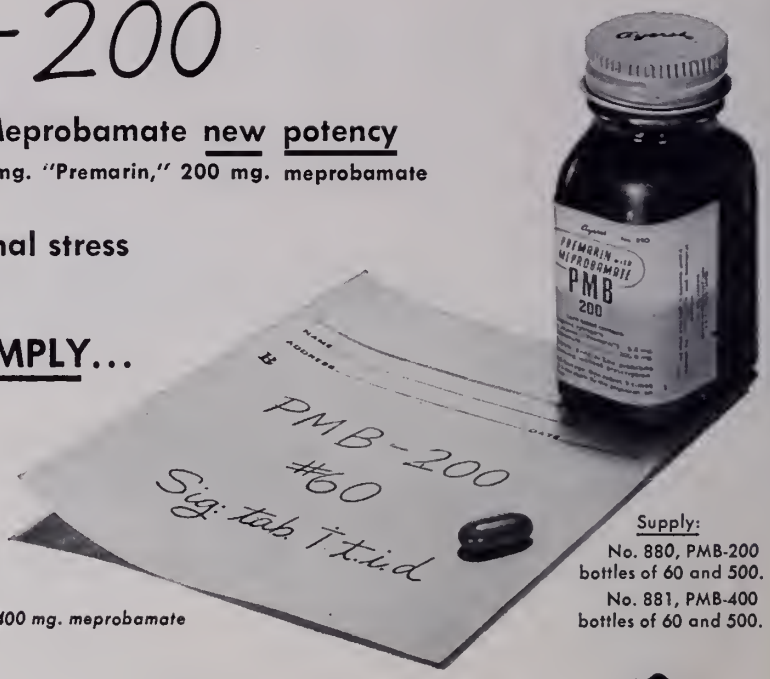
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Now—the most widely prescribed tranquilizer[1] in sustained release capsules

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meprobamate (Miltown®) capsules



q. 12 h.

Two capsules on arising **last all day**
Two capsules at bedtime **last all night**
relieve nervous tension on a *sustained* basis, without between-dose interruption

"The administration of meprobamate in sustained action form [Meprospan] produced a more uniform and sustained action ... these capsules offer effectiveness at reduced dosage."[2]

Dosage: 2 Meprospan capsules q. 12 h.
Supplied: 200 mg. capsules, bottles of 30.

1. Meprobamate is more widely prescribed than any other tranquilizer. Source: Independent research organization; name on request.
2. Baird, H. W., III: A comparison of Meprospan (sustained action meprobamate capsule) with other tranquilizing and relaxing agents in children. Submitted for publication, 1958.

Literature and samples on request

WALLACE LABORATORIES, *New Brunswick, N. J.*
who discovered and introduced Miltown®

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Hospital practice of infant feeding

Standard formulas for FEEDING REGULATION

Underfeeding is a common cause when infants fail to gain and thrive. In the earliest stage, when caloric intake is inadequate, the infant cries after feeding, remains constipated, and the restlessness from hunger is mistaken for colic. A changed or weakened formula appears to be indicated.

But clinical studies show that a young infant requires a formula of 2 ounces of whole milk (40 calories), a teaspoon of Karo Syrup (15 calories), and a half-ounce of added water *per pound of body weight per day.* Of the total calories, a successful formula yields about 15-20% in protein, 50-60% in carbohydrate, and 25-35% in fat. Whole milk must be reinforced by adding 5% to 10% carbohydrate (1) to provide protein-sparing effect which permits protein anabolism instead of energy production; (2) sufficient calories for tissue formation; (3) proper utilization of fat; (4) suitable acid-base relationships in the intestinal tract and (5) adequate weight gains.

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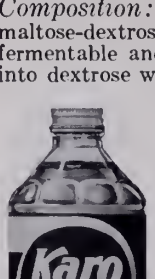
Age Months	Whole Milk Fluid Oz.	Water Oz.	Karo Syrup Tbsp.	Each Feeding Oz.	Number of Feedings in 24 Hours	Total Calories
Birth	10	10	2	3	6	320
1	12	13	3	4	6	532
2	15	13	3	4½	6	480
3	17	9	3	5	5	520
4	20	11	3½	6	5	610
5	23	11	4	6½	5	700
6	26	10	4	7	5	760

EVAPORATED MILK FORMULAS

Age Months	Evaporated Milk Fluid Oz.	Water Oz.	Karo Syrup Tbsp.	Each Feeding Oz.	Number of Feedings in 24 Hours	Total Calories
Birth	6	12	2	3	6	380
1	8	16	3	4	6	532
2	9	14	3	4½	5	576
3	10	15	3½	5	5	650
4	12	18	4	6	5	768
5	12	21	4	6½	5	768
6	13	22	4	7	5	812

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Composition: Karo Syrup is a superior dextrin-maltose-dextrose mixture because the dextrins are non-fermentable and the maltose is rapidly transformed into dextrose which requires no digestion.



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Dosage: The recommended adult dose is 1 Gm. (2 tablets) the first day, followed by 0.5 Gm. (1 tablet) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours.

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Tablets: Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

Syrup: Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

references:
1 Grieble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958
2. Editorial: *New England J. Med.* 258:48-49, 1958.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

*Reg. U.S. Pat. Off.



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When he sees it engraved on a Tablet of Quinidine Sulfate he has the assurance that the Quinidine Sulfate is produced from Cinchona Bark, is alkaloidally standardized, and therefore of unvarying activity and quality.

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Rx Tablets Quinidine Sulfate Natural
0.2 Gram (or 3 grains)
Davies, Rose

Clinical samples sent to physicians on request

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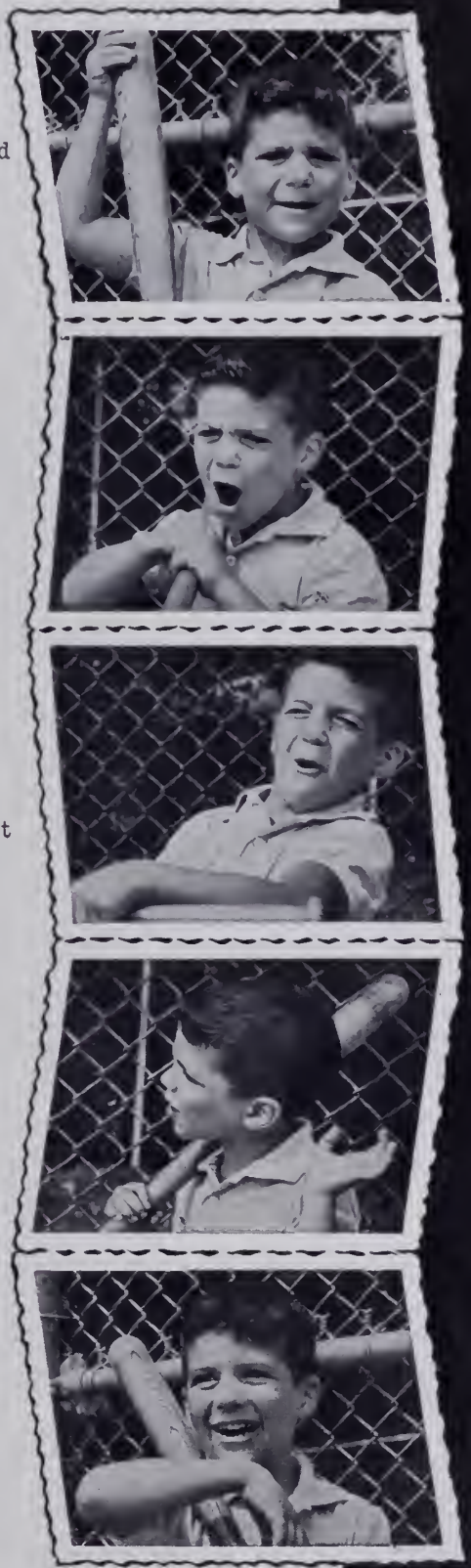
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"It happened at work while he was putting oil in something"

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"But Doctor gave him some nice pills--and the pain went away fast"

"Dad said we'd play ball again tomorrow when he comes home"

AND THE PAIN WENT AWAY FAST

FOR PAIN

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ACTS FASTER...
usually within 5-15 minutes

LASTS LONGER...
usually for 6 hours or more

MORE THOROUGH RELIEF...
permits uninterrupted sleep through the night

RARELY CONSTIPATES...
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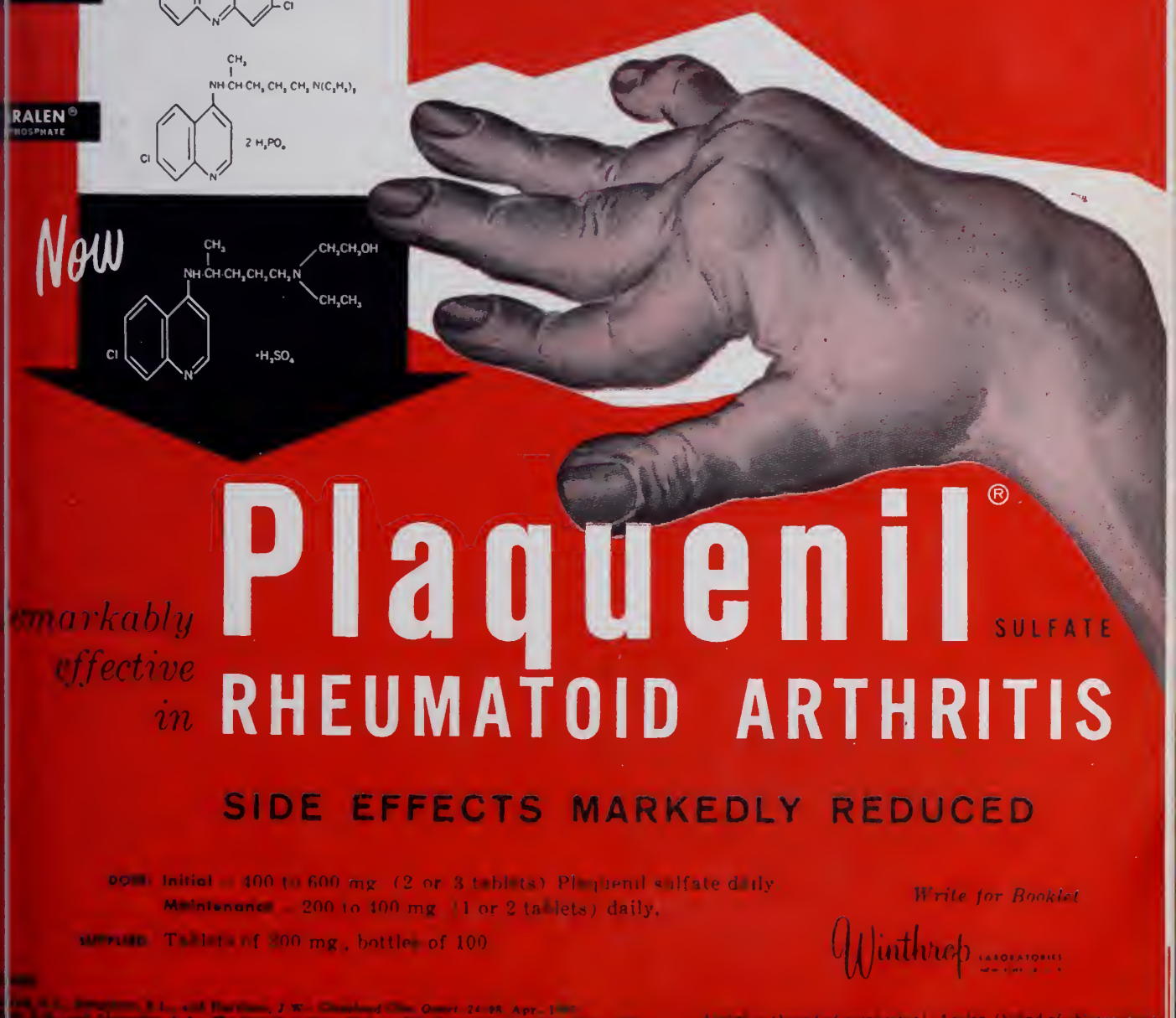
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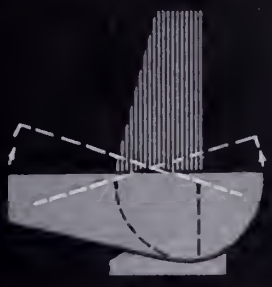
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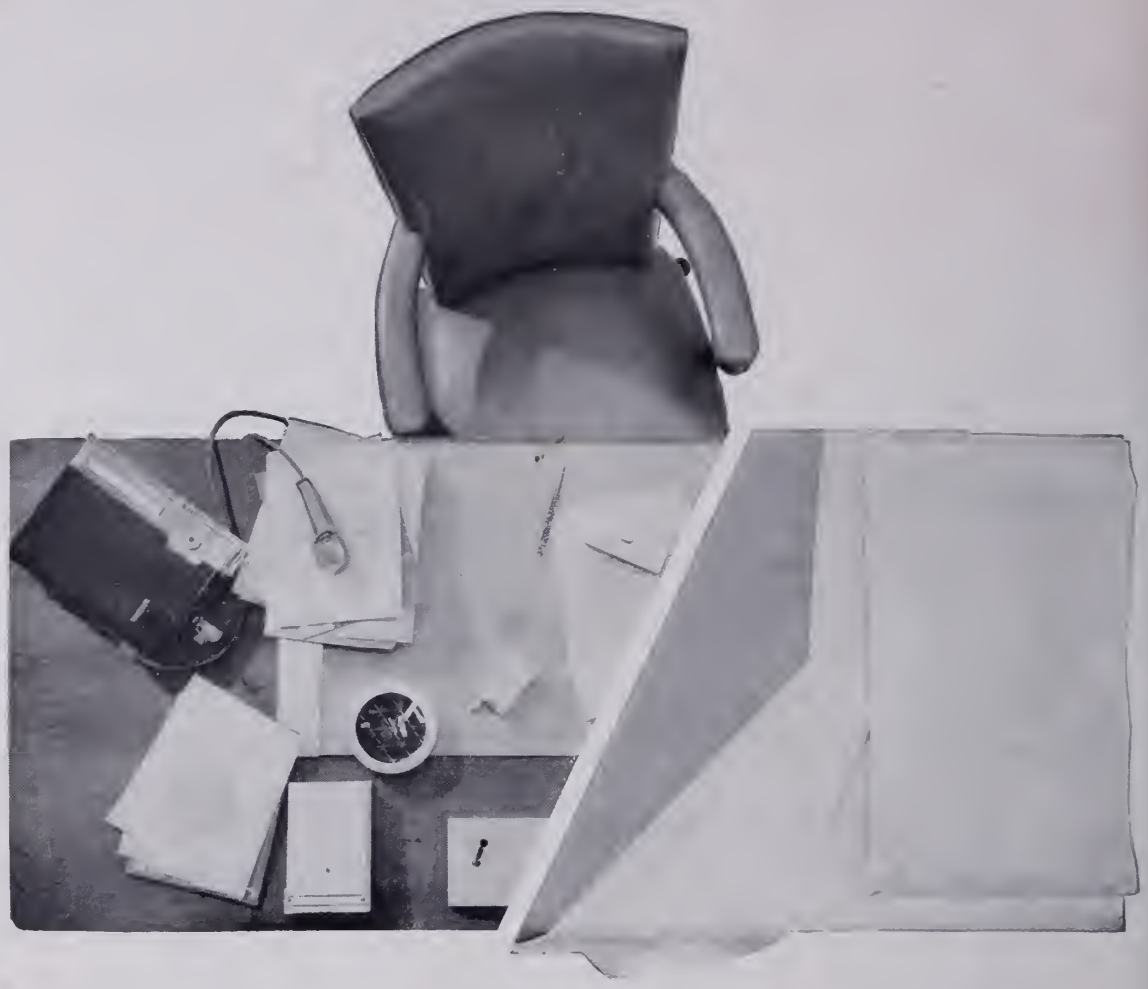


. . "The ACS Research Grants Program was conducted in 1957 under a reorganized scientific advisory structure established by the Board of Directors in 1956. This consists of a Research Advisory Council of 15 members and six standing and special advisory committees of 15 members or more each."

These excerpts are from the recently released Annual Report of ACS. Copies of the Report which outlines the Society's achievements in 1957 are available from:

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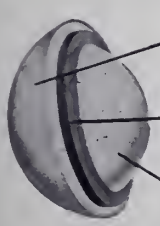
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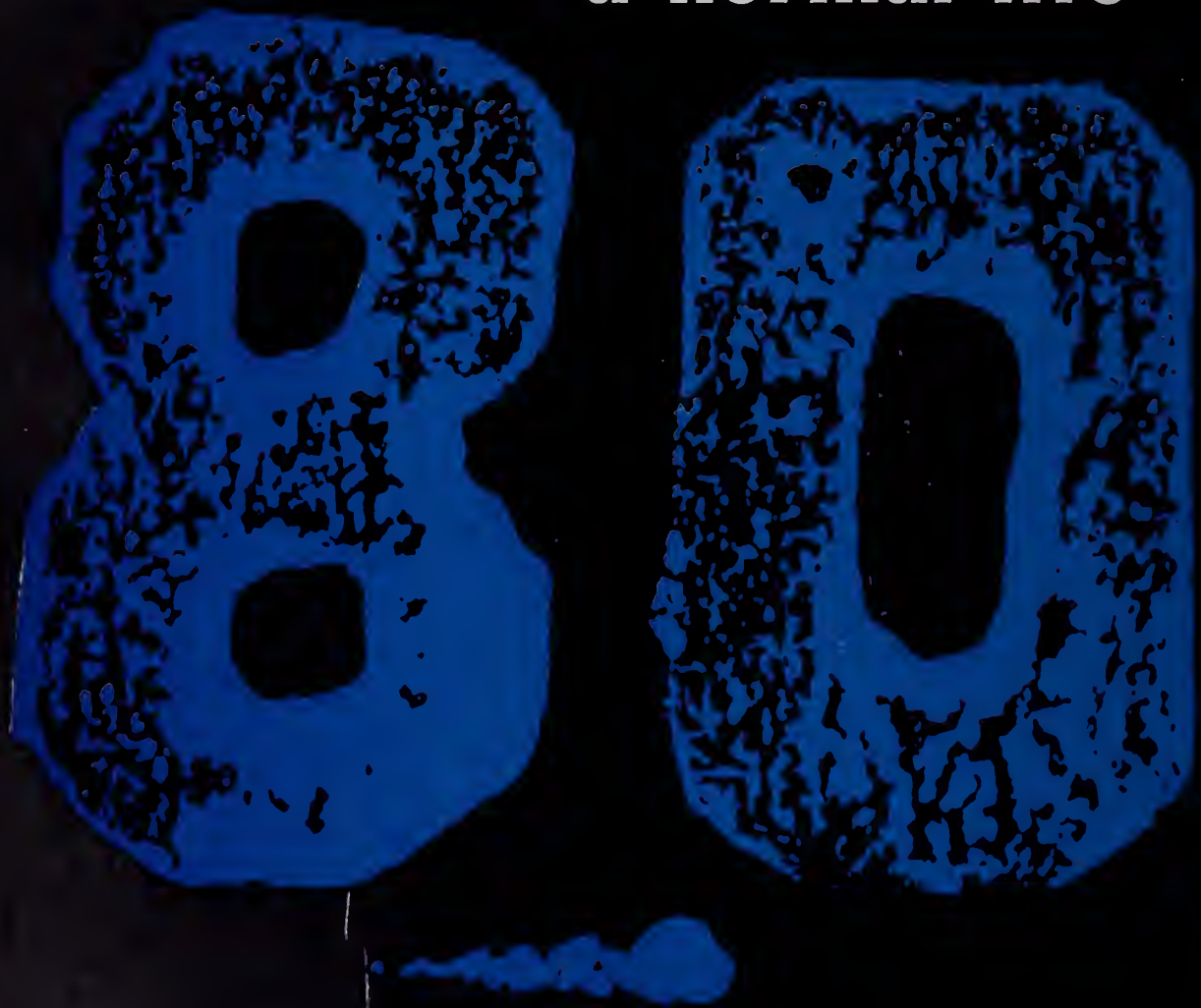
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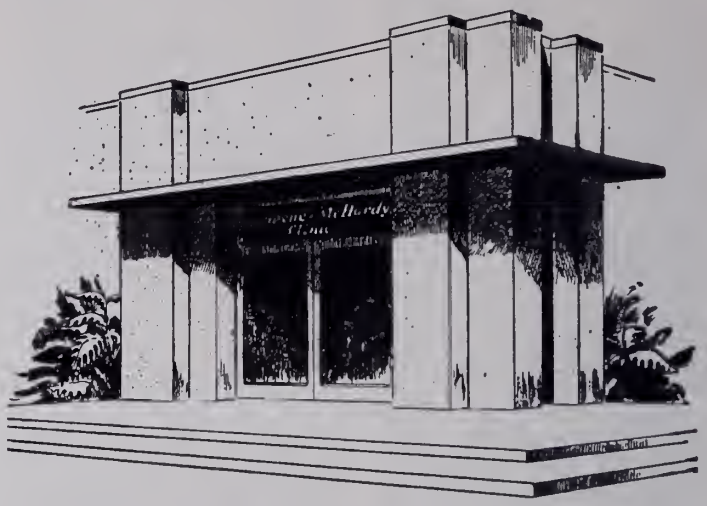
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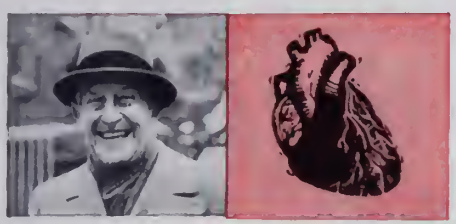
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references:
1 Grieble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958
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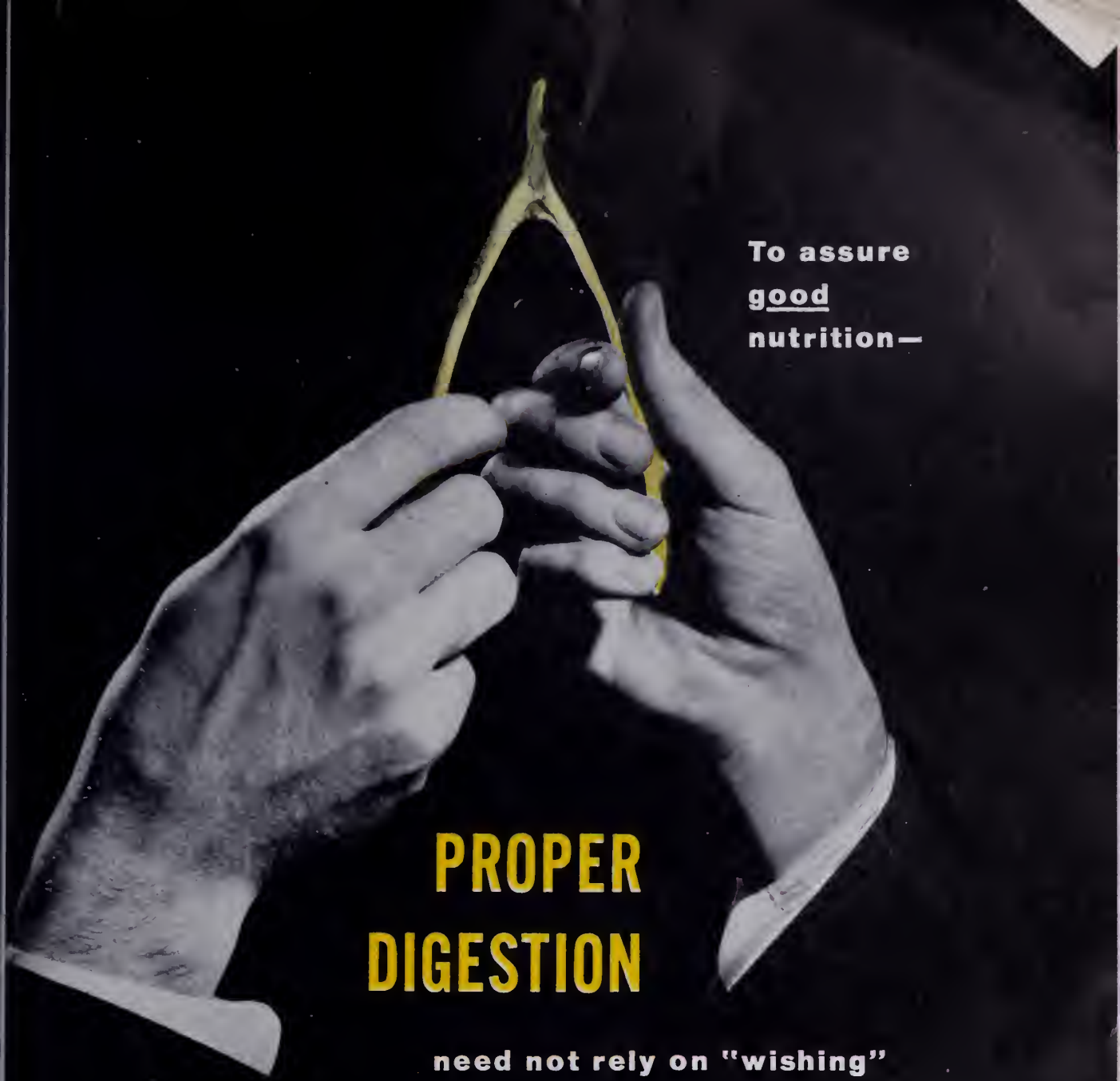
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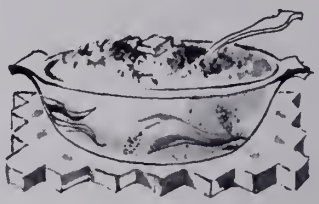
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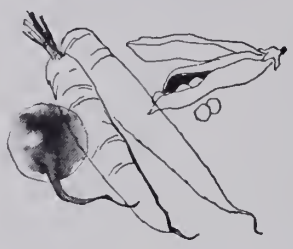
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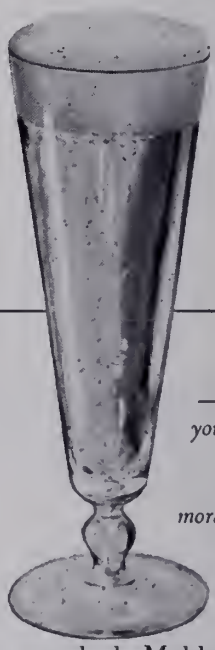
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INTERNAL MAMMARY ARTERY LIGATION IN CARDIAC DISEASE*

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Shreveport

Now and again one hears of a procedure or technique which is advocated for the treatment of a medical condition and which is simple and relatively innocuous, beset with little or no danger, and for which the results claimed are unbelievably good. Only very rarely does the originator of such a procedure find that his work is accepted and his prediction of results confirmed. Much more frequently observation and clinical application disprove the tentative conclusions, and the procedure is either abandoned entirely, or continued in use as an adjunct to another procedure with advantageous result.

Within recent years we have been given the proposition of internal mammary artery ligation in the treatment of angina pectoris and other forms of cardiac disease. The procedure is simple enough in the hands of a competent operator to be carried out in the presence of even the most serious types of cardiac disease, and the results reported are surely unbelievably good. Mammary artery ligation has reached the stage of fairly widespread clinical application. When adequate periods of observation have been had with representative series of cases the true picture of the value of this procedure will evolve. This communication is not meant to furnish the answer to the problem, but is designed to be only one of the needed reports.

* Presented at the Seventy-eighth Annual meeting of the Louisiana State Medical Society, Shreveport, May 7, 1958.

BASIC EXPERIMENTAL AND CLINICAL OBSERVATIONS

Consideration of the subject under discussion began with the suggestion by Italian workers that the myocardial circulation could not be considered as exclusively terminal and that some anastomoses with other vascular districts should be present. This led to the assumption that a continuous vascular network of the subserosal, parietal, and visceral layers might exist. An attempt to demonstrate anatomically the existence of anastomoses between the circulatory districts of the internal mammary and coronary arteries met with but little success. Radiopaque substances were injected into the mammary arteries and were visualized in some of the small branches in the periaortic and peripulmonary areas. With this little encouragement the hypothesis was advanced that creation of hypertension in the vascular district of the internal mammary arteries should influence favorably the arterial circulation of the myocardium. The obvious method of creating such hypertension was by ligation of the internal mammary arteries distal to the origin of the pericardiophrenic branch. Anatomically this point of ligature would be in the second interspace. At this stage of investigation one patient was subjected to the operation. He had suffered infarctions every few months for several years, but was alive and had experienced no further infarction during the two year period after surgery.

With this basic data these workers proceeded with anatomical-surgical studies on cadavers and experimental studies on dogs. In both groups of subjects injection of suitable material into the internal mammary arteries at the level of the second interspace, with prior ligation above and below this level, resulted in demonstration of the injected material in the periaortic and peripulmonary branches and those of the epicardial fat. Only in the group of dogs was it noted that nearly always there was also injected material in the coronary branches.

On the basis of these observations the procedure of bilateral internal mammary artery ligation was considered to be worthy of clinical application. The results which were obtained will be mentioned later.

In this country Dr. Robert P. Glover of Philadelphia has done extensive experimental and clinical work in this field. He further verified the existence of a significant communication between the internal mammary and coronary arterial systems by injection studies in a series of normal dogs. He reported results of these studies as follows:

"1. Significant quantities of dye (Evans blue, flourescein and I^{131} injected into the internal mammary arteries at the level of the pericardiophrenic arteries were visualized in all animals in the small vessels throughout the parietal pericardium, in the mediastinal pleura and fat; around the base of the aorta and pulmonary artery and cavae; in the walls of the atria; in the epicardial fat over the atrioventricular grooves and repeatedly in the small plexuses of vessels underlying the epicardium. In one instance the entire thickness of the left ventricular myocardium was stained with dye even out into the base of the papillary muscles.

"2. Gross dye mixed with blood was observed to flow from the distal ends of the transected circumflex or anterior descending artery in those dogs so prepared.

"3. Radioactive iodine was found in the venous specimens removed from the coronary sinus in increasing amounts with the usual peak reached from five to ten minutes after injection. The peak was somewhat variable, but for the most part followed a set pattern.

"4. One centimenter segments of left ventricular myocardium and the posterior interventricular septum were routinely found to contain radioactive iodine.

"5. The source of this extracardiac arterial supply by the conditions of the experiment could only be by way of the pericardiophrenic artery to the parietal pericardium, thence to the myocardium under the epicardium along the roots of the great vessels and at the reflections of the pericardium."

In a later series of animal experiments Glover attempted to evaluate the degree of protection afforded the animal by previous ligation of the internal mammary arteries when subjected to sudden, acute myocardial infarction by ligation of the anterior descending coronary artery at its origin. He points out the technical care which must be exercised in producing the desired uniform infarction in that the septal branch must be spared, and the first branch of the anterior descending artery must be ligated separately if it has an anomalous origin. Myocardial infarction was produced in the same manner with the control group and with the "protected" group. In the "protected" group of dogs ligation of the internal mammary arteries was carried out with intervals of five to forty-five minutes, twenty-four and forty-eight hours prior to ligation of the anterior descending coronary.

In the control group of 14 dogs there were 14 fatalities. Nine dogs died of ventricular fibrillation in periods of from five to twenty minutes, 4 others died within twenty-four hours, and 1 survived for two weeks, only to die in pulmonary edema. The "protected" group numbered 19 animals. Of these 4 died within a few minutes of ventricular fibrillation. Efforts to resuscitate such members of both groups by massage and defibrillation were of no avail. Four other dogs in the "protected" group died within twenty-four hours. Eleven dogs (58 per cent) lived five or more days, and 7 (36 per cent) recovered completely. The interval of time between ligation of the mammary arteries and the production of infarction made no appreciable difference in the degree of protection provided.

Let us consider the results obtained by the clinical application of bilateral internal mammary artery ligation. Battezzati, Tagliaferro and De Marchi [1] in a preliminary paper, in 1955, reported a total of 25 of their patients and mentioned a series of 7 cases of another author. In their series

11 had had infarctions, 8 of which were old, the others having occurred two and five days, and three weeks, respectively, prior to the surgical procedure. They reported that anginal pain subsided in all patients and did not recur when normal activity was resumed. Dyspnea and other signs of myocardial insufficiency disappeared in 7 of the 8 patients who had presented these findings. Electrocardiographic evidence of myocardial ischemia was markedly modified or cleared entirely, and the improvement was maintained. Favorable alterations of the ballistocardiographic changes were also noted in most cases. It was further reported that in addition to the loss of anginal phenomena all the patients reported a normal sense of well being.

In January 1957, Tagliaferro and Franca [2] reported a series of 70 patients. Again there was relief of anginal pain, improvement in electrocardiographic and ballistocardiographic findings, improvement in dyspnea and other signs of myocardial insufficiency, where these had existed. There was reduction of heart size in 6 of the 8 which had presented enlargement, and definite subjective improvement in all cases.

Glover [3] in November 1957, reported a series of 77 patients upon whom this surgical procedure had been carried out. His criteria for surgery was the presence of organic coronary insufficiency with angina pectoris, and the patients fell into three categories:

"1. Angina pectoris due to coronary insufficiency (arteriosclerotic or hypertensive) primarily after proved infarction, occasionally without proved antecedent infarction.

"2. Arteriosclerotic heart disease with coronary insufficiency resulting in myocardial insufficiency; (a) episodic heart failure, (b) arrhythmias.

"3. Hemodynamic coronary insufficiency (angina) due to aortic valvular disease. True coronary artery sclerotic changes may well be absent in this group."

Fifty of Glover's cases were carefully followed for periods of from one to five months, and evaluation of the results was made, not by Dr. Glover, but by one of the cardiologists associated with him. Analysis of these cases showed that 34 (68 per cent) had been clinically improved in that they had had no angina after surgery (18 patients, 36 per cent), or had experienced fewer and less severe episodes of pain (17 patients, 32 per cent). In most instances improvement or abolition of pain and discomfort was immediate, in some a period of forty-eight to seventy-two hours was required, and in a few seven to ten days passed before complete results were noted. In 11 patients (22 per cent) no lasting clinical improvement could be found although some of those seemed improved for a while. At the time of the report 5 of the patients had died, 3 of whom survived less than one month after surgery. All of the deaths were to be expected on the basis of the conditions which existed, but in only one instance could the surgical procedure be incriminated. In this case the operation might well have been deferred because of the very poor condition of the patient, but under the circumstances the hopeless outlook was weighed against the possibility of improvement with surgical treatment. After a stormy time during the operation the patient died in the recovery room. Autopsy showed advanced coronary atherosclerosis with multiple small posterior and septal infarctions.

As a participant in a symposium in a recent meeting, Glover stated that his series now numbers 100 cases, 73 per cent of whom had shown improvement. This was graded as slight in 23 per cent, moderate in 28 per cent, and marked in 22 per cent. He stated that 700 cases in medical literature had reported improvement in from 70 to 75 per cent.

Regarding objective evidence of improvement, Glover finds himself in the same blind alley occupied by other workers in the field of investigation of coronary artery disease and blood flow. No instrument is available for their accurate measurement and documentation. He does report evidence of improvement in the electrocardiograms and/or ballistocardiograms in 42 per cent as against 68 per cent of the patients who showed clinical improvement. He feels that this discrepancy might have been narrowed had it been possible to obtain ballistocardiograms on all of the patients (instead of only

20) with a postoperative period of a month or more instead of the routine observation on the sixth day.

PRESENT SERIES OF 19 CASES

The series herein to be reported comprises 19 patients, 14 of whom were males and 5 females. The youngest was thirty-seven years of age, 1 was forty-one, 4 were in the fifties, 12 were from sixty to sixty-seven, and 1 was seventy-six years of age. Our indications for surgery were the same as those previously outlined by Glover, except that, at least in our first 6 cases, we added the stipulation that no progress was being made and degeneration of the condition was being observed despite our best efforts.

All of the patients suffered angina, most of them in severe and disabling form. Two presented chronic myocardial failure secondary to coronary arteriosclerosis and 1 of these had repeated serious exacerbations and chronic auricular fibrillation. Eleven of the cases presented clear-cut evidence of infarctions, 4 of which were anterior, 1 antero-lateral, and the remainder posterior. None of the patients exhibited cardiomegaly, and only 2 were hypertensive. Three others had blood pressures which were labile and at times elevated, and 1 had had hypertension on occasion in previous years. One patient had been subject to bronchial asthma for more than thirty years. Four were diabetic, 3 of whom were well controlled and the other a newly discovered case. The only other complicating condition was 1 instance of quite widespread gouty arthritis.

With the recommendation for internal mammary artery ligation these patients were promised nothing. They were given a simple description of the procedure, reassurance that no unfavorable result or complication would be expected, and they were told that in reported cases more than half of the patients had experienced relief, the degree of which had varied from little to marked. In order to minimize psychic overlay, they were told further that the operation was being recommended equally as much for possible improvement of myocardial circulation in the future as for immediate relief of pain.

RESULTS

As had been the case with every series reported, objective proof of effectiveness of this surgical procedure is most difficult to demonstrate. All that we can offer is that in 7 cases (36 per cent) there were changes in the postoperative electrocardiograms which were considered to reflect improvement. These changes varied from only increase in amplitude of T waves to transition from inversion to normal, but in only 3 cases were the changes more than slight. In contrast to this there were 7 instances in which the electrocardiograms were morphologically unchanged. Another case showed no alteration of the tracing but ectopic beats were reduced in number, while the case with fibrillation showed no change of any kind.

Of the cases showing no change, in 3 the electrocardiograms were abnormal only during anginal episodes or during the Master's two step test. This test has not been repeated postoperatively in the one, and in the other 2 the marked RS-T segment and T wave alterations during angina persisted after surgery. In 3 instances there were no pre-infarction cardiograms for comparison, but of these 2 presented very minimal residual evidence of infarction, while the third presented an average degree of permanent change.

The follow-up period in this group varies from one and one-half to more than twelve months, with the average being just under six months. There was no operative mortality and very little morbidity with the exception of one wound infection. Sixteen of the patients are living and 3 have died.

The first death was in the case of a 65 year old female, classified as arteriosclerotic heart disease with angina, myocardial failure, and auricular fibrillation. She had not had an infarction. She had been incapacitated for two years prior to operation, and had been in critical condition on several occasions. She survived for seven months postoperatively, continued to have fibrillation and chronic myocardial

failure but did complain less of pain. She died of myocardial failure.

The second death was that of a 61 year old man. He was a well controlled diabetic, but had had digestive symptoms for several years. Electrocardiographic proof of coronary disease was lacking until six weeks prior to operation. At that time we also were able to elicit the history of retrosternal pain on exertion. Later he was having pain while at rest, coming on even during sleep. Ligation of the mammary arteries was performed on December 16, 1957, and in retrospect we know that he was suffering an infarction at that time without undue pain and with no shock. He made a very good recovery and on discharge on January 31, complained only of postprandial gas formation. During the night of March 5, 1958, (two and one-half months after operation) he again experienced severe chest pain and returned to the hospital. Upon arrival he was comfortable, his electrocardiogram indicated no acute situation, and he had a comfortable day. Shortly after his supper he died suddenly. Autopsy revealed old and new infarcts both involving the septum. The old one also extended into the anterior wall of the left ventricle. The coronary arteries showed moderate to marked arteriosclerosis with narrowing that varied from 50 to apparently 100 per cent. The apparently complete occlusion was present in the right circumflex and left anterior descending coronary. The pathologist commented on the prominence of the left internal mammary artery with its branches fanning out over the pericardium. Injection studies were not possible, and no communication between the mammary branches and myocardial blood supply was discernible grossly.

The third fatality in the group was a 37 year old female physician who had recently given up public health work to enter private practice. History of angina dated back only six months, but attacks were severe and frequent, and only limited relief was obtained with nitroglycerin. The electrocardiogram which was essentially normal was markedly distorted during anginal episodes, and despite the pleas and persistent urging of her attending physician and consultants she refused to remain at rest, continued to take nitrogycerin and other vaso-dilators freely and carried on her office work. Six weeks after surgery she died suddenly while seeing a patient.

Obviously, poor results were obtained in the above 3 cases. Two others are classified as clinically unimproved because of the fact that despite definite improvement in symptomatology it is impossible to eliminate the effects of improved habits and medication as factors. Thus in 5 cases (26.3 per cent) no benefit is claimed as a result of the surgical procedure.

On the other hand 6 patients (31.5 per cent) are asymptomatic insofar as the cardiac disease is concerned after periods of from six weeks to nine months. Four of these had infarctions from two to ten months prior to operation. The remaining 8 patients (42.1 per cent) have presented improvement of at least moderate degree and half of these should be listed as nothing less than marked. In this group 5 had suffered infarctions, 4 had experienced myocardial failure, and in all angina had been a prominent symptom.

This subjective appraisal of improvement is based upon such experiences as the following:

Case No. 3 had no postoperative pain. After nine months he has pain only on walking fast. He takes no nitroglycerin, because relief comes as soon as his gait is slowed.

Case No. 4 carries nitroglycerin and demerol tablets but has not used either for more than six months. During the first three months he suffered two serious episodes, each of which followed dietary indiscretion. This patient presented the most marked electrocardiographic improvement.

Case No. 5 could not walk a block without stopping and taking nitroglycerin at least twice. Now takes nitroglycerin rarely—none for six weeks prior to last examination.

Case No. 9 made an excellent recovery after infarction with no recurrence of pain. Myocardial failure controlled with digitalis. Carries on his regular work as an executive.

Case No. 1 probably accounts for our

continued interest in this procedure. He is 66 years of age, suffered a massive anterior infarction in February 1956, continued to have angina through the year, and had near fatal myocardial failure in January 1957. Internal mammary artery ligation was done in April 1957. During the fourteen months prior to operation he had spent 118 hospital days with us, plus another period of hospitalization nearer his home. He was discharged on the tenth postoperative day and has not been readmitted. He takes digitalis and peritrate, but has no pain, is active, and enjoys life.

SUMMARY

Basic experimental and clinical observations pertaining to the use of bilateral ligation of the internal mammary arteries in the treatment of certain types of cardiac disease are reviewed.

A series of 19 cases in which this procedure was carried out is reported. All of the patients presented angina, 11 had suffered infarction, and 5 had either episodal or chronic myocardial failure. Follow-up ranged from six weeks to more than twelve months.

Objective evidence in the form of improvement in postoperative electrocardiograms was noted in only 7 cases (36 per cent).

No clinical improvement was noted in 5 patients (26.3 per cent), 3 of whom have died.

Six patients (31.5 per cent) are asymptomatic insofar as the cardiac condition is concerned.

Eight patients (42.1 per cent) have presented very definite clinical improvement which could be classified as from moderate to marked.

Subjective experiences of several of the patients have been noted.

CONCLUSION

This small group of patients has provided the author with some real disappointments and some very agreeable surprises.

It remains a fact there is no method available to measure objectively and document coronary circulation, impediments or improvement therein, and results of surgical measures designed to aid the narrowed or obstructed coronaries. Editorial comment in the *New England Journal of Medicine* suggests that the procedure of internal mammary artery ligation should be withheld until such time as coronary blood flow can be objectively measured. Observation of the patients in the group reported has convinced me that to follow the above suggestion would be a mistake. Improvement experienced by a fairly high percentage of patients justifies continued use of the procedure, and only after continued use and careful observation of a great many patients will the true value of this operation be known. My opinion at present is that despite results which look very favorable, internal mammary artery ligation is not the final answer, and that the operation will eventually find its place as a valuable adjunct to some other procedure. It might be predicted that even then there will be no accurate method for objective measurement of improvement.

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AROBON THERAPY IN THE OFFICE MANAGEMENT OF THE DIARRHEAS OF EARLY LIFE *

EDWIN A. SOCOLA, M.D.

New Orleans

The education of the public to better nutrition of infants and young children and to higher standards of general hygiene and sanitation has contributed greatly to the lowering of the mortality rate from diarrhea. The treatment of the severe cases by fluid and electrolyte replacement as well as the proper use of antibiotics, has certainly been a great step forward from the bismuth, paregoric and barley water days of a few decades ago. In spite of these newer scientific measures, diarrhea still remains a problem in some sections of this country.

CLASSIFICATION

The diarrheas of infancy and childhood can be divided into the following groups:—

1. Simple (Non-infectious, dietetic)
2. Parenteral
3. Infectious
   a. Bacterial
   b. Protozoal
   c. Virus
4. Diseases associated with diarrhea (celiac disease)
5. Miscellaneous (nervous, allergic, etc.)

The simple diarrheas are those non-infectious diarrheas caused by a dietary indiscretion (mechanical) or the inability of the infant or child to digest some part of the diet (fermentative-carbohydrate or protein-putrefactive).

The parenteral diarrheas may be defined as those caused by an infection outside of the digestive tract, such as otitis media, urinary infections, pneumonitis, etc.

The infectious diarrheas present an infection in the digestive tract caused by (1) bacteria, such as strains of *B. dysenteriae* or salmonella, etc.; (2) *Endameba histolytica* and other protozoal incitants; (3) or of virus origin.

CHOICE OF THERAPY

In the determination of the proper therapy to be initiated, the clinical classification of the diarrheas into mild, moderately severe, and severe is acceptable. By the study of the signs and symptoms present, such as dehydration, toxic symptoms (hyperpyrexia, circulatory disturbances with anoxia of the tissue, meningismus, shock), vomiting, and the blood chemistry findings, the severity of the diarrhea can be rapidly estimated and proper treatment instituted. In the severe forms, intravenous correction of dehydration and electrolyte depletion is imperative, transfusion for shock, and antibiotic therapy when infection is present are spectacular life saving therapeutic measures. If the dehydration and the electrolyte loss, as well as the vomiting are minor in character, and the blood chemistry findings are only slightly altered from the normal—the so-called moderately severe cases—response to oral hydration will often suffice without resort to intravenous therapy. Darrow emphasizes that practically no deaths occur from diarrhea without the development of dehydration and that by the replacement of water and electrolyte loss, the mortality figures can be kept very low. In the mild cases of diarrhea, dehydration and toxic symptoms are absent and vomiting, if present, is only slight.

The practitioner in the office, in the home, or in the clinic encounters a large variety of mild or moderately severe diarrheas. If these little patients remain untreated or are improperly managed, severe fluid and electrolyte loss can result and the clinical status can rapidly change from mild to severe. From the economic standpoint as well as for the welfare of the patient prompt correction is therefore most desirable. As soon as the vomiting, if present, has been corrected, the use of an antidiarrheal dietetic agent should be considered. The essayist, accordingly, studied 74 cases of diarrhea, mostly in the office, in the period between December 1, 1955, and November 30, 1956, using processed powdered carob flour, arobon, as the corrective di-

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etetic agent.

Carob flour is obtained from the fruit of the carob tree *(Ceratonia siliqua),* which is found in the Mediterranean countries. The fruit, commonly known as St. John's Bread, has been described as a pod 8 to 25 cm. in length, 2 to 4 cm. broad, and 5 to 10 cm. thick. The outer covering is rather hard and coarse but the pulp is yellow and rather sweet. The carob flour has been processed with starch into the product, Arobon.* The chemical composition of this product is shown in Table 1.

Although the use of the fruit of the carob tree dates back to biblical times, Ramos

TABLE 1

	%
Hemicellulose, pectin, lignin	22.0
Starch	15.0
Crude fiber	3.0
Sucrose and reducing sugars	50.5
Protein	3.5
Fat	0.5
Minerals	2.0
Moisture	3.5
100 gms. furnishes 270 calories	
Calories per gm = 2.7 cal.	
Calories per teaspoonful = 7 cal.	
Calories per tablespoonful = 21 cal.	
Each 100 gms. of arobon furnishes:	
860 mg. potassium	
20 mg. sodium	
80 mg. phosphorus	
190 mg. chloride ion	

*Nestles Company, Inc.—Pitman Moore

of Barcelona, in 1941, noted that the children of the poorer classes, who ate the fruit seldom suffered from diarrhea. In contradistinction, the children of the more prosperous classes, who avoided the fruit, were much more subject to diarrheal disturbances. Ramos accordingly began to use carob flour in the treatment of diarrhea and was rewarded with successful results. Various Spanish and other European pediatricians also experimented with carob flour and found it an efficient antidiarrheal agent. Canadian and American investigators have similarly reported equally good results so that today carob flour has received world-wide recognition.

Mode of action: Arobon rapidly reduces the number and improves the consistency of the stools, thus minimizing dehydration and further loss of electrolytes by the bowel route. This has been attributed to the high hemicellulose, pectin and lignin content of arobon. At the same time the relatively high electrolyte content of arobon (100 grams of arobon furnishes 860 mg. of potassium, 20 mg. of sodium, 80 mg. of phosphorus and 190 mg. of chloride ion) provides an intake of these elements to combat the previous loss.

The high lignin content of arobon provides a high buffering power and the high carbohydrate content (50.5 percent) serves to prevent acidosis. Fructose is the predominating carbohydrate and the other natural fruit products are readily resorbed and non-fermentable. Neyroud has shown that arobon produces a change in the intestinal bacterial flora, while Tolentino demonstrated the adsorptive action of arobon not only on bacteria but also on the toxins of hemolytic staphylococci and enterococci.

In severe cases of diarrhea, chemo and antibiotic therapy can be combined with arobon. Recently the preparation, Intromycin (Pitman - Moore) has been introduced, each gram containing 950 mg. of carob powder, 15 mg. of streptomycin as the sulphate, and neomycin sulfate 7.5 mg. (equivalent to neomycin base 5.25 mg.). These two antibiotics have a synergistic action. Neither is absorbed to any extent and they are both efficient against a wide variety of intestinal pathogenic microorganisms.

Andrews used a 5 percent solution of arobon in infants under two years of age and a 10 percent solution in those over two years. He found that the use of saccharin was helpful in those infants who did not enjoy the intake of the preparation.

USE OF AROBON IN 74 CASES

The essayist studied 74 cases of diarrhea in the period between December 1, 1955, and November 30, 1956, using powdered arobon as the corrective therapeutic agent. With only a few exceptions, practically all of the cases handled were of the mild clinical type. In fact, in only 3 cases was vomiting present to any extent at the time treatment was instituted and this was rapidly

overcome by oral hydration (modified Ringers solution 60 percent and Coca Cola 40 percent). In these cases, it was possible to start the arobon formula at the end of twenty-four hours intake of the corrective solution.

The average duration of diarrhea before the beginning of treatment was 2.7 days.

The number of stools in the twenty-four hours preceding the initiation of treatment was 7.7.

The average age of the patients treated was 1.94 years.

Method:—The previous formula was disturbed as little as possible. If cows milk, evaporated milk or powdered milk had been used before the onset of diarrhea, the strength of the formula was reduced 25 percent and 1½ level tablespoonfuls of powdered arobon was added to each 8 oz. of the formula. If a soluble carbohydrate had been part of the formula, it was discontinued in favor of arobon. In 3 cases, diarrhea developed with a hypo-allergic milk formula, the latter was reduced also 25 percent in strength, the added carbohydrate was discontinued temporarily and 1½ level tablespoonfuls of arobon was added.

The arobon formula was offered exclusively for forty-eight hours at four intervals day and night. At the end of this period, the arobon in the formula was gradually decreased and other suitable foods were added—strained broths, dry toast, strained ripe bananas, scraped raw apples, etc. for a transitional period of at least forty-eight hours more before resumption of the regular diet.

The arobon formula was usually enjoyed by the little patients—only 2 of the 74 cases refused it altogether. Several others did not care for the mixture and although they took only a fraction of the volume offered, the results were favorable and they improved readily with the small intake and the following transitional diet.

The use of antibiotics was restricted to cases in which a marked parenteral condition existed at the time treatment was instituted. It may be mentioned that penicillin or one of the other antibiotics was used in 15 cases of the series because of otitis media, associated with a respiratory infection.

Dr. Ralph Hartwell studied the stool culture of 29 cases of our series. He found *E. coli and B. proteus* were the predominating organisms—no shigella or salmonella organisms were reported by him.

As a rule the results obtained in our cases were excellent as judged by the rapid diminution in the number and improvement in the character of the stools as well as the general physical return to normalcy within the ninety-six hours of treatment.

During the early months of the study, Dr. Thomas J. Garvey, Jr., my associate, and I compared the results obtained in (1) 14 control enteral cases treated by ordinary methods with those of (2) 29 cases (2a) 19 of the enteral type and (2b) 10 of the parenteral variety) in which arobon was used. In the first group, the diarrhea was "cleared up" in 3.3 average days, while in group 2a, 1.5 days, and 2b, 1.9 days.

Since the completion of our one year's study on December 1, 1956, I have used 5 percent and 10 percent arobon solutions, depending on the age, (sweetened with saccharin if necessary) for the first twenty-four hour period of treatment and then followed with the formula previously described.

SUMMARY

In summarizing, it may be stated that arobon therapy is a safe and efficient method of treating the "average run" of mild, and some of the moderately severe forms of diarrhea that the practitioner is called upon to handle in his office. Furthermore, the results obtained with the use of arobon are rapid and uniformly good.

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DISCUSSION

Dr. Robert T. Lucas (Shreveport): We are indebted to Dr. Socola for bringing to our attention this useful therapeutic agent. My experience with it parallels his. Briefly, its use helps to maintain electrolyte balance and adequate caloric intake. It adds bulk to the intestinal contents and reduces irritation of the inflamed intestinal mucosa. The little patients usually like it. The mixture containing arobon is a bit sweet, light brown in color and results in a stool somewhat similar to that of a patient on cocoa. I usually add up to one teaspoonful of the Arobon powder to each ounce of formula during the acute phase. The Arobon is reduced gradually and finally omitted.

It is a valuable agent to keep in mind in treating diarrheas.

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THE RESULT OF TREATMENT OF HYPERCHOLESTEROLEMIA ASSOCIATED WITH ATHEROSCLEROSIS WITH SITOSTEROL AND SAFFLOWER OIL DERIVATIVES *

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CHEMICAL FACTORS IN PATHOGENESIS OF ATHEROSCLEROSIS

The chemical factors in the pathogenesis of atherosclerosis were reviewed by Barr [1] in 1953. He emphasized that man appears to be unique in his predisposition to the spontaneous development of atherosclerosis. Furthermore, human plasma shows an elevation of the cholesterol-phospholipid ratio, beta lipoprotein, and Sf 10-20 bodies as compared to dogs, rabbits, and rats. Atherosclerosis [2] has been produced by feeding large quantities of cholesterol to rabbits. Hartroft and Thomas [3] have produced myocardial infarctions in rats by diets high in fat (40 per cent butter, lard, or hydrogenated fat) supplemented with cholesterol and cholic acid with a protein content of 12 to 20 per cent. The animals were given Thiouracil to further elevate the serum cholesterol. Clinically one can only recognize atherosclerosis by its complications. Barr [1] has shown that survivors from myocardial infarction on the average have a higher than normal serum cholesterol and cholesterol - phospholipid ratio, a smaller percentage of cholesterol in the form of alpha lipoprotein and a higher concentration of Sf 10-20 bodies in the ultracentrifugal pattern. It must be realized, however, that the deviations which were so apparent on the average were not present in some individuals at the time of examination. We all know the high incidence of atherosclerosis in diabetes, familial hypercholesterol-

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The Cytellin used in this study was generously furnished by the Lilly Research Laboratories' Medical Division, and the Saff by the Abbott Laboratories, Medical Division.

emia and familial xanthomatoses. Pollack [4] has emphasized the definite association of obesity with the so called degenerative diseases of the heart, blood vessels and kidneys.

CHEMISTRY OF BLOOD LIPIDS AND LIPOPROTEINS

Let us consider the chemistry of blood lipids and lipoproteins. According to Fredrickson [5] there are about 300 mg. of fatty acids in 100 cc. of normal fasting plasma. Approximately 80 per cent of these are in the form of phospholipids or in simple esters of glycerol. About 15 per cent are esterified to cholesterol and 5 per cent are unesterified and circulate simply bound to protein. All of the plasma lipids are too insoluble to exist in simple solution and are transported in combination with proteins. Cholesterol, phospholipids, and glycerol are found associated with globulin, forming macromolecules called lipoproteins. Some of the unesterified fatty acids are present in these but the bulk are bound presumably to albumin. Lipoproteins may be separated by electrophoresis into beta, alpha$_1$ and alpha$_2$ fractions. Goffman [6] and his associates have refined the ultracentrifuge technique and divided the lipoproteins into a whole spectrum of classes. The alpha$_1$ fraction is of high density. The low density lipoproteins are placed by this method into classes according to the Svedberg flotation unit, the Sf. The lower the density, the higher the number. The beta lipoproteins lie approximately in the Sf 0-10 and the alpha$_2$ are within the Sf 10-400 class. The largest percentage of cholesterol and phospholipids is distributed through the alpha$_1$ and beta lipoproteins, that is those of higher density, with a lesser amount in the alpha$_2$ groups. The ratio of cholesterol to phospholipids in the beta fraction is approximately 2:1; whereas they are about equal in the alpha 1 and 2 lipoproteins. The triglycerides are found chiefly bound to those of lowest density and when present in large amounts impart turbidity and lactescence to the serum. This occurs normally in alimentary hyperlipemia and pathologically in familial xanthomatoses and idiopathic hyperlipemia. Clearing involves hydrolysis of the triglycerides in the presence of lipoprotein lipase. This reaction will appear quickly after the injection of heparin with the formation of glycerol and fatty acids and the consequent decline in the higher Sf (lower density) lipoproteins and a rise of the lower Sf fractions.

SIGNIFICANCE OF HYPERCHOLESTEROLEMIA

Goffman [7] and associates, in 1950, reported on their studies in the use of the ultracentrifuge method in predicting of atherosclerosis. Originally their work indicated an elevation of the Sf 10-20 in normal persons who are most likely to develop complications of atherosclerosis. Later [8] they extended their studies to include the relationship of the elevation of the Sf 12-20, 0-12, and 20-400 to the development of coronary artery disease. A group of investigators [8] supported by the National Heart Institute carried out an extensive study to evaluate Goffman's method. The results are not conclusive, but they seem to indicate that atherosclerosis as manifested by evidence of coronary artery disease is associated with antecedent elevation of the Sf 20-100 (and possibly Sf 12-20) lipoproteins and of the serum cholesterol. This elevation was not of clinical use in predicting the development of coronary heart disease. The use of Sf 12-20 and Sf 20-100 lipoproteins had no advantage over the simpler measurements of cholesterol in indicating men prone to develop coronary disease. With these findings in mind it would seem indicated that all patients with clinical evidence of coronary artery disease on an arteriosclerotic basis should have determinations of their serum cholesterol and if this is elevated whatever means practical should be utilized to reduce it.

It should be mentioned that the serum cholesterol is a quite variable quantity. It has been shown that exercise [9] can prevent the rise that occurs after a meal or reduce the increase after abnormal alimentary loading. Stress[10] will cause elevation of the serum cholesterol by as much as 125 mg. per cent. Especially in younger patients [11] with familial hypercholesterolemia there is a tendency to increase of the serum cholesterol during myocardial infarction with a tendency to return to lower levels during convalescence.

THERAPY

In the dietary management of hypercholesterolemia weight reduction is indicated in obesity. This should be done slowly because if too fast it will cause an initial elevation [12] of the serum cholesterol. Two of our patients illustrate this fact with initial change of the serum cholesterol from 425 to 500 and from 275 to 350 with weight reduction. Diets low in fat and cholesterol have been advocated [13], but it should be remembered that reduction to less than 50 grams of fat and 200 mg. of cholesterol is required to lower the serum cholesterol appreciably.

Many therapeutic agents have been tried to change abnormal serum lipids. In males estrogens in dosage of 10 mg. of premarin daily, according to Robinson and associates,[14] cause a decrease in total cholesterol, an increase in phospholipid and an increase in alpha lipoprotein cholesterol. Nicotinic acid [15, 16] in dosage of 3 grams daily is reported to cause a reduction in the total serum cholesterol and of the beta/alpha lipoprotein ratio. Oddly enough, nicotinamide is ineffective. There are numerous indecisive reports [17] of the effect of the lipotrophic agents such as choline and methionine on the elevated serum cholesterol. Aqueous heparin [18, 19] administered in dosage of 200 mg. two to three times a week causes the conversion of triglycerides to glycerol and fatty acids but the serum cholesterol, according to Engelberg and associates,[19] shows relatively little change. There is a four to thirty-six hour reduction in the Sf 12-400 lipoprotein with a slight increase in the Sf 0-12 lipoprotein. Besterman [20] has reported, however, the reduction of the serum cholesterol in a patient treated with 250 mg. of heparin twice a day for three weeks and then daily. This patient had hypercholesterolemia, xanthoma tuberosum and tendinosum, with ischemic heart disease.

SITOSTEROL

In 1953, Pollack [21] reported on his studies of a plant sterol, sitosterol. It interferes with the absorption of endogenous and exogenous cholesterol supposedly by the formation of inseparable mixed crystals which are nonresorbable. Another explanation [22] is that it interferes with the absorption of cholesterol by competing with it for esterification; note the similarity of their chemical formulae (Fig. 1). Sitosterol differs from cholesterol [16] only by the presence of an ethyl group on carbon-24. Cytellin, the commercially available preparation, is a 20 per cent suspension of beta and dihydrobeta sitosterols; it is derived from tall oil. The latter is a product of pine chips, requiring the average annual harvest on one acre of replanted forest to produce enough sitosterol for each pint of the final product. In addition to lowering the cholesterol, Farquhar and associates have noted a reduction of the beta lipoprotein lipid, and the total

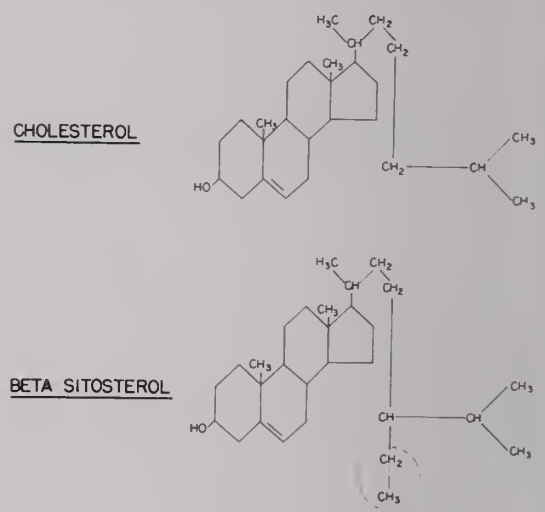


Figure 1

lipid with a slight rise in the alpha-lipoprotein lipid. Best [22] has noted a trend toward reduction of the Sf 3-10, 10-30 and 30-100 classes of lipoproteins. Numerous reports [21-30] attest to the cholesterol lowering properties of sitosterol; however, it is interesting that Wilkerson and associates [31] state that in their patients sitosterol did not alter the serum cholesterol over periods up to thirty-five weeks.

We have treated 11 patients with this agent. Of these 6 were cooperative and took the medication as prescribed in dosage of ½ to 1 ounce before meals and smaller amounts before snacks. Five of these showed reduction in their serum cholesterol levels (Fig. 2) : the patient labeled 1 in the

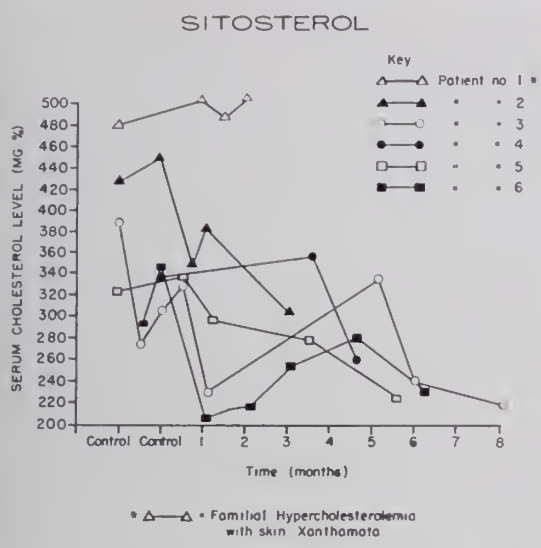


Figure 2

graph has familial hypercholesterolemia with xanthomatous skin lesions and showed an increase of the serum cholesterol while under treatment. It should be noted that Levkoff and Knode [32] reported 2 cases of familial hypercholesterolemia, *forme fruste*, in which sitosterol did cause a reduction of the serum cholesterol. Studies by Gould,[33] using tritium-labeled beta-sitosterol show that contrary to previous writings, it is absorbed about 10 per cent as completely as cholesterol. One wonders if this could explain the increase in the serum cholesterol in this patient with familial hypercholesterolemia.

SAFFLOWER OIL DERIVATIVES

Mann [17] has reviewed the relationship of essential fatty acids to atherosclerosis. It has been proposed that there is in the diet a relative deficiency of the essential unsaturated fatty acids, the most important of which are linoleic, linolenic, and arachidonic. It has further been hypothesized that pyridoxine is essential for the conversion of linoleic to arachidonic acid; the evidence for the latter is not conclusive. Corn oil (Mazola) contains 35 per cent linoleic acid and cotton seed oil (Wesson Oil) contains 50 per cent essential unsaturated fatty acids. Other seed, peanut and olive oils are also rich in this constituent. It should be noted that the catalytic hydrogenation of natural fats results in the transformation of unsaturated into saturated fatty acids. The safflower [34] was grown for centuries in Asia, Africa, and Europe and is now grown to some extent in the United States. Safflower oil is extracted from its seeds and has been used as a food in India and various parts of Europe. It contains 74.5 per cent linoleic acid. There are at least three palatable emulsions of safflower oil commercially available. Saff, Abbott's product, contains 46 per cent linoleic acid. The recommended dosage is five tablespoons a day, which would supply 35 grams of linoleic acid. Linodoxine, Pfizer's product, contains 30 per cent linoleic acid. Although the recommended daily dosage is three tablespoons, we have used six in some of our patients. Three tablespoons would thus contain 13.5 grams of linoleic acid plus 15 mg. of pyridoxine. Arcofac, Armour's preparation, contains 45.3 per cent linoleic acid. The recommended dose varies from two to eight tablespoons a day, depending on the severity of the hypercholesterolemia. If five tablespoons are given then there would be 34 grams of linoleic acid and in addition 3 milligrams of pyridoxine.

Nine patients were treated with safflower oil derivatives, only 5 of whom ingested it in the prescribed amounts and long enough for evaluation. (Figure 3). Of these, 4 showed reduction of their cholesterol levels to normal, and 1, the same

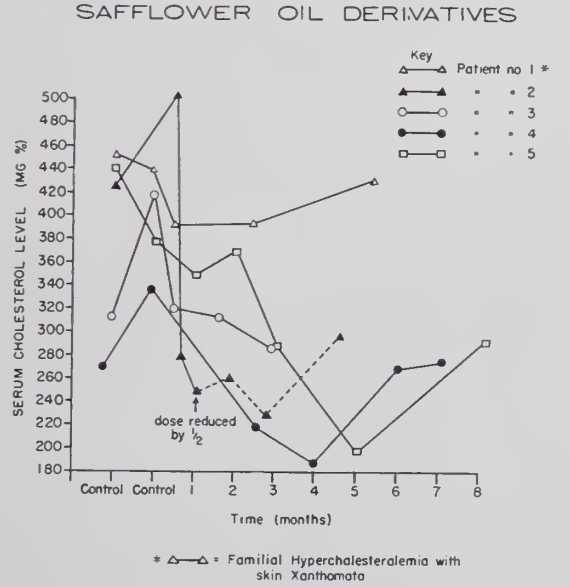


Figure 3

patient mentioned above with familial hypercholesterolemia, showed a reduction from an average of 480 mg. per cent to 440 on a very low fat and low cholesterol diet and down to as low as 387 when safflower oil emulsion was added. After liberalization of the diet the serum cholesterol stabilized on therapy at about 436 mg. per cent.

The average percentage fall in cholesterol after treatment with sitosterol was 24 per cent and with safflower oil derivatives was 28 per cent. Note that in the patients that have been treated with safflower oil for over three months the serum cholesterol has started to rise. In patient number 2 this was correlated to a reduction of dosage to half, but still within that which is recommended for the product. Farquhar and associates [35] have reported a 20 per cent fall in the beta-lipoprotein cholesterol after safflower oil or sitosterol. A combination of the two produced a 32 per cent reduction. The difficulties encountered with administration of these agents can be listed as cost, quantity, anorexia, and other gastrointestinal disturbances. For these reasons it is quite hard to continue treatment for extended periods. In our opinion, neither of these agents is the answer to hypercholesterolemia; however, until better therapeutic measures are available we will continue to use them. It is interesting to note that none of the cooperative patients has shown complications of atherosclerosis such as myocardial infarctions, or cerebrovascular accidents since under therapy. The period, however, has been short: for safflower oil one to eight months, and for sitosterol three to eleven months.

Hoffer [36] has carried on extensive studies with nicotinic acid and is presently trying to overcome its one side effect, cutaneous vasodilatation and pruritus. Apparently the flush is related to the niacin concentration in the blood at the time it is administered and on the absorption rate. If the blood level is high, a flush does not result. According to Hoffer, the most effective way of decreasing the flush is to treat the nicotinic acid in such a way that it is absorbed slowly from the stomach, rather than from the small intestine. If the niacin is coated with cooking oil, this will abolish the flush in about 50 per cent of the patients. A different approach has been proposed by Curran and Azarnoff [37] for the treatment of hypercholesterolemia. They advocate that a drug should be forthcoming that will inhibit the intermediary metabolic synthesis of cholesterol. The two most promising compounds are at present alpha-para-biphenylbutyric acid and diammonium oxytartratovanadate. It is hoped that these recent studies will evolve a more desirable, economical and effective form of therapy.

SUMMARY AND CONCLUSIONS

1. The chemical factors in the pathogenesis of atherosclerosis have been reviewed.

2. The chemistry of blood lipids and lipoproteins has been briefly described.

3. The dietary and drug treatment of hypercholesterolemia has been elaborated upon.

4. Our results with sitosterol and safflower oil emulsion have demonstrated a 24 per cent and 28 per cent reduction of the serum cholesterol respectively.

5. It is felt that neither of these is the answer to atherosclerosis, but that until a better drug is found they should be used. It is hoped that current studies will evolve a more effective and practical form of therapy.

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DISCUSSION

Dr. Edw. O'B. Comer (Metairie): The hypothesis has been advanced that modern civilization in the more successful parts of the world has raised the level of blood lipids, interfering with the normal lipid transport system, and thus laying the groundwork for myocardial infarction. As has just been pointed out, patients with coronary artery disease may have higher serum cholesterol values than do so called normal individuals. The question can be raised, however, as to whether the high value is the result, rather than cause, of myocardial infarction.

Keys has ably shown that in man the cholesterol level does not depend on dietary cholesterol as such, but does vary with the fat constituents in the diet. A high fat intake is usually associated with a high blood cholesterol. And, from many reports, it can be assumed that such high intake and level are at least partially responsible for the prevalence of coronary disease. In this connection it may be interesting to mention the White Chapel paradox. This refers to the London Hospital autopsy records from 1910 to 1950. That institution paid careful attention to coronary arteries over this period with the conclusion that there was more coronary atheroma in the blood vessels of 1910 than in the latter portion of the period studied. However, the morbidity from myocardial infarction at present is much greater. The question again: "Is cholesteral the essential factor involved in the production of coronary artery disease?" Then there are families in whom almost every member has a high cholesterol level. Diet and/or oils fail to achieve a satisfactory lower figure of this substance and myocardial infarction occurs with greater than usual incidence. Regardless of this, it seems evident that serum lipids are abnormal in some individuals who will have, or have had, an occlusion. The obvious maneuver is to attempt a lowering of the lipids to reduce the chances of such a catastrophe.

As to the mechanism of lowering cholesterol with various agents, no final conclusion can be drawn. If linoleic acid is the active substance, then safflower seed oil is the answer, for it has a higher linoleic content than corn oil. If only unsaturation is the mechanism, fish oils (containing little linoleic acid and only minute amounts of arachidonic acid) should produce the greatest reduction. Yet corn oil does a better job of lowering cholesterol than either of these other agents (Keys). Corn oil is apparently in some way capable of producing results not measured by either unsaturation or fatty acid content alone. This suggests that no simple inverse relationship of

cholesterol to fatty acid in the diet exists. Other evidence tends to substantiate the idea that dietary fat as a group exerts a strong pull on serum cholesterol.

It is to be noted that in experiments with tissue cultures of cells of the human aorta, deposition of lipid can be induced by cholesterol. Saturated fatty acids (stearic acid) can augment the deposition of lipid by cholesterol. This process, in the cultures, is reversible and can be inhibited by linolenic acid.

Brock has reported a study on stool bile acid excretion in people on controlled diets and those on increased unsaturated fats. The bile acid excretion rose in those cases supplied with the latter. He postulated a mechanism of action involving the increased synthesis of bile acid from cholesterol with such a diet. This is supported by tracer studies demonstrating that cholesterol is an important precusor of bile acid.

Particularly in the American scheme of food habits, reduction of total fats in the diet to a level commensurate with significantly lower cholesterol is difficult to achieve. The removal of butterfat (mostly saturated acid) will produce a potential tremendous fall in serum cholesterol, much more so than with other means mentioned. A rice diet of vegetarian regime is not palatable to many people. Therefore, other measures have been exploited. Dr. Leckert and his coworkers have demonstrated that the sitosterol and safflower oil products are quite capable of reducing serum cholesterol.

The disadvantages of administration and cost have been brought out. If ordinary corn oil (Wesson Oil and Mazola) could be ingested in adequate quatities, cost would not be a deciding factor. Obviously it is less expensive to reduce lipids in the grocery store than in the pharmacy. Curiously enough in this connection investors in corn products have realized a profit in the stock market.

The idea of nicotinic acid is a welcome addition to the prevention of high lipid levels. Other substances are undergoing experimentation in this regard. Until such better methods are found, I agree with Dr. Leckert that sitosterol and safflower oil will continue to offer the patient temporary advantage over the changes of coronary artery disease and every effort should be made to convince the patient to accept their administration at present.

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A PHYSIOLOGICAL APPROACH TO CERTAIN SURGICAL PROBLEMS INVOLVING THE PANCREAS *

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INTRODUCTION

Many problems involving the pancreas, formerly of interest only to the physiologist, now concern the surgeon. In this presentation attention will be focussed on the diabetic state following pancreatectomy and the role of the pancreas in the production of peptic ulcer.

DIABETES ASSOCIATED WITH PANCREATIC RESECTION

One sequela following total removal of the pancreas is diabetes mellitus. Before the first operative procedure of this type was carried out in man in 1943, it had been ascertained by pancreatectomy in the dog and cat that the diabetes could usually be controlled by adequate administration of insulin.

In reviewing the records of 12 patients who were subjected to total pancreatectomy at Touro Infirmary and Charity Hospital of New Orleans, in the period 1945 to 1957, 7 of these patients were found to have died in the immediate postoperative period. Of the 7 that died, only 2 were thought to have lived long enough for diabetes to be a factor: in 1, the surgical diabetes was controlled; in the other, the patient died in a state of refractory diabetic acidosis on the eleventh postoperative day.

Of the 5 who survived the procedure to go home, 2 were considered under control on 20 units of regular insulin a day and another, a moderate diabetic, on 55 units of NPH insulin a day. The fourth patient had severe "brittle" diabetes, having several episodes of insulin shock alternating with diabetic coma after departure from the hospital, and his death at home was ascribed by his local physician to coronary

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artery disease. These 4 patients were dead within the year.

The fifth survival was controlled on small quantities of PZI in the hospital. One month postoperatively he was readmitted in severe insulin shock and despite energetic measures to combat the effects of the insulin, died three days later.

The fact that in the experimental animal pancreatic function is in many respects similar to that in man has led to much work in the laboratory in reference to total ablation of the pancreas. Another aid in this study is in the use of alloxan. Following experiments in 1943, in which alloxan was found to cause necrosis of the islets of Langerhans in rabbits, this substance came into general use for the production of permanent experimental diabetes in several species. On administering alloxan to dogs, the histologic picture shows selective necrosis of the beta cells without damage to the other components of the islets or acinar tissue. The hyperglycemia and hyperlipemia in these dogs is more severe than that usually seen in pancreatectomized animals. Though the difference was attributed to the toxic action of the drug on the liver, the dogs live a long time without insulin therapy and without developing severe ketosis.

Characteristic of the diabetes in the alloxan-treated dogs is the severe glycosuria as well as the large insulin needs. The diabetes is considerably more severe than that which follows total pancreatectomy in the same species. Despite the more severe diabetes, the dogs that have been given alloxan live much longer than do pancreatectomized ones in the absence of insulin treatment. They maintain excellent health for long periods and do not go into diabetic coma. Their survival was attributed to a very low urinary ketone body excretion. Pancreatectomy in these animals results in a diminution of the daily glycosuria and a reduction of the insulin requirement to about one-third of its preoperative level though the body weight and dietary intake remain constant. If no insulin is given the dogs after the pancreas is removed, ketosis is rapidly progressive and the characteristic coma of pancreatectomized dogs supervenes within a few days. Unlike pancreatectomy, ligation of the pancreatic ducts has little or no effect on the course of alloxan diabetes.

In order to supply a satisfactory explanation for the disparity between the effects of pure beta cell deficiency and those of surgical removal of the pancreas, it was postulated that a second endocrine substance is secreted by the pancreas. This substance was thought to have bilateral activity, acting in opposition to insulin to increase the blood sugar and prevent ketosis and coma in the insulin deficient animal. The latter effect must in some way result from the inhibition of ketogenesis, for there is sufficient proof that in pancreatectomized animals, the ketone bodies are utilized normally. That neither the interruption of the pancreatic ducts nor the administration of alloxan abolishes these effects would appear to implicate some other pancreatic tissue as the source of the hormone, the most likely being the alpha cells.

The alpha cells of mammals are distinct structures having granules which definitely suggest secretory activity. Various differences in the physical characteristics of the granules indicate that the chemical function also differs from that of the beta cells. The first suggestion which was made regarding the possibility of an alpha cell secretion came from Dragstedt and his coworkers in reference to lipocaic which was believed to be necessary for the prevention of fatty metamorphosis of the liver and maintenance of life in pancreatectomized, insulin-treated dogs.

Even before a comparative study was made between alloxan treated and pancreatectomized animals, aqueous extracts of the pancreas were shown to contain two active principles. The first of these, insulin, lowered the blood sugar level while the other raised it. The latter was named "glucagon," i.e., a sugar-producing agent. However, the evidence that glucagon represents an entity is still not completely convincing. There is no clear demonstration that it is a hormone or that it is secreted by the alpha cell or the argentophil cell. Glucagon or the hyper-

glycemicglycenolytic factor (HGF) of the pancreas apparently depolymerizes liver glycogen. The mechanism by which HGF does this is obscure.

Recently, glucagon has been given pancreatectomized patients, resulting in elevation of the blood glucose and slight depression of ketone levels after initial sharp rise.[1] The ketone levels rose sharply at the onset, were depressed at the end of four hours, and again mounted rapidly with its continued administration. The urinary nitrogen did not increase as occurs in animals in association with inhibition of ketogenesis. These findings suggest that deficiency of glucagon may be responsible for the low insulin requirements and high susceptibility to ketosis in pancreatectomized patients.

Complete removal of the pancreas by surgical means results in a relatively mild diabetes in most patients. Since this deprives the organism of lipase, trypsin, and other enzymes, incomplete absorption of foodstuffs or actual steatorrhea usually results, and gluconeogenesis is decreased. The demand therefore for insulin would appear to be less.

Certain atypical diabetic manifestations following total pancreatectomy have been labelled insulin-resistant and insulin-sensitive types. Insulin resistance may be due to infection and ketosis. Other possible causes of insulin resistance include hormonal, enzymatic, and immunologic changes.

One of the patients in this series died in insulin shock and it is presumed that he demonstrated an abnormal sensitivity to insulin. Insulin sensitivity is not uncommon among the published reports which indicate that small quantities of insulin given to these patients have led to irreversible insulin shock.

That the diabetes following pancreatectomy is quite treacherous is reflected in the case report that follows:

Case Report. J. D., 48 year old white man, was operated on May 23, 1950, at Touro Infirmary, for an adenocarcinoma of the stomach. The omentum, spleen, entire stomach, body and tail of the pancreas were removed. Later, a pancreatic fistula developed and most of the remaining pancreas was believed to have sloughed, creating for all practical purposes a totaliy pancreatectomized patient. Repeated blood glucose determinations were done, and the highest value was 134 mgm/100 cc. No glycosuria was noted in the last week of hospitalization. Studies, in September 1950, revealed normal carbohydrate metabolism.

The patient maintained his weight postoperatively until October 1950, when he began to lose weight rapidly, became weak, and noted polydypsia and polyuria. Eight hours before admission to the hospital he became semistuporous. On admission at 6:30 a.m., November 5, 1950, he was in a semistuporous and dehydrated state with Kussmal breathing and acetone on his breath. The blood pressure was 98/58 and the pulse rate 130/minute. The urine contained four plus acetone and sugar and urinary flow was 20 drops per minute.

The initial laboratory studies were as follows: Blood sugar 932 mgm/100 cc., serum CO_2 6 mEq/L, serum C1. 102 mEq/L, serum K 5 mEq/L, serum Na 130 mEq/L, hematocrit 55, intracellular K 81 mEq/L packed RBC, intracellular Na 16 mEq/L packed RBC, intracellular K/Na ratio 5; after 12 hours of therapy the blood sugar was 370 mgm/100 cc, serum CO_2 16 mEq/L, serum C1 106 mEq/L, serum K 4.3 mEq/L, serum Na 134 mEq/L, hematocrit 46, intracellular K 128 mEq/L, intracellular Na 17 mEq/L, intracellular K/Na ratio 8. During the twenty-four hour period the intake of water was 7760 cc, Na 570 mEq, K 339 mEq, CHO 150 grams, 400 units of regular insulin and 50 units of PZI. The urinary output of water was 1340 cc, Na 18 mEq, and K 93 mEq.

The patient continued to improve and was discharged from the hospital November 18, 1950, on 35 units of PZI daily. During 1951, he was maintained on 15 units of PZI daily with an occasional insulin reaction during the night and since that time he has been taking 10 units of NPH insulin daily.

THE ROLE OF THE PANCREAS IN THE PRODUCTION OF PEPTIC ULCER

Of late, considerable attention has been drawn to the association of a noninsulin-producing islet cell tumor of the pancreas and peptic ulcer which manifests with extreme hypercidity and hypersecretion not controllable by extensive gastric resection and vagotomy. The stimulus appears to be of humoral origin.

It has also been shown that insulin induced hypoglycemia causes peptic ulcer formation through its stimulating influence on the cephalic phase of gastric acid secretion in animals. Based on a study of 56 patients with hypoglycemia in the Columbia-Presbyterian Medical Center, Porter and

Frantz [2] have the impression that there is a possible statistically significant higher incidence of gastrointestinal bleeding in patients who have had islet cell adenomas than in patients without such tumors.

However, knowledge of other interrelationships concerned with function of the pancreas and the production of peptic ulcer dates back much further and reference here is made to the external secretion of the pancreas. The experiments of Mann, in the early 1920's, established the fact that pancreatic juice diverted from the duodenum, either to the exterior or into the lower bowel, leads to the formation of duodenal ulcer. Genesis of the ulcer has been attributed to the corrosive action of the gastric juice when its acidity has not been lowered by the bicarbonate of the pancreatic secretion. It has been difficult to prevent the development of ulcers in dogs with total pancreatic fistulae even with the daily administrations of large amounts of alkalis, and ulcers would occur in almost 100 per cent of the dogs if treatment were not carried out.

Dragstedt [3] reported the incidence of experimental peptic ulcers following external fistula as occurring in almost 100 per cent of the dogs following ligation of the ducts, nearly 33 per cent, and following pancreatectomy, practically zero per cent. From these findings under conditions of the experiment the formation of ulcer is not adequately explained by failure of neutralization in the duodenum of the gastric acid by the diverted alkaline secretions. Does the pancreas have an intrinsic influence upon ulcer formation other than that of mere alteration of the *p*H of the duodenal contents? This question must go unanswered, although clinically the alkaline secretions are of importance in the prevention of ulcer.

In the surgical performance of excising the head of the pancreas and duodenum for various diseases in that area, emphasis has been rightly placed on reconstruction of the gastrointestinal tract so that the pancreatic and biliary secretion crosses the gastrojejunal stoma. When either or both the pancreatic and biliary secretion enters the bowel distal to the gastrojejunal opening, marginal ulceration usually develops rapidly.

Dashiell and Palmer [4] have called attention to the fact that the failure of the alkaline pancreatic secretion to enter the duodenum resulting from obstruction of the pancreatic duct, as occurs in carcinoma of the pancreas, may lead to the formation of duodenal ulcer. However, with an incidence of only 3 per cent in 90 pancreatic neoplasms, the authors did not seem to think the incidence was great enough to warrant any conclusion statistically.

It is a clinical fact that peptic ulceration of the second portion of the duodenum in the ampullary area is rare. In view of the pancreatic duct obstruction persisting over a long period and the presence of a large ulcer in the second portion of the duodenum which may have been due to exclusion of the alkaline pancreatic juice, the following case report is submitted:

Case Report. M.F., a 38 year old negro woman, was admitted to Charity Hospital on August 23, 1956, with hematemesis and melena. For the past five weeks she had been having severe epigastric pain radiating through to the back. In 1950, and again in 1952, she had been admitted to the hospital with epigastric pain, elevated serum amylase and a deformed duodenal cap. On June 17, 1953, she was admitted with obstructive jaundice and during the hospitalization the abdomen was explored. A firm mass was present in the head of the pancreas and the gallbladder and common duct were dilated. A diagnosis of chronic pancreatitis was made. Transduodenal sphincterotomy and choledochostomy were accomplished and a longlimbed T-tube was inserted in the common duct. The T-tube was removed some four months later.

Significant findings on the present admission included no free hydrochloric acid on gastric analysis and the gastrointestinal series depicted an obstruction in the second portion of the duodenum. At abdominal exploration on September 12, 1956, the head of the pancreas was firm and enlarged (Fig. 1). An ulcer was present in the second portion of the duodenum. The common bile duct, only slightly dilated, was traced from above and below through the ampulla. The pancreatic duct contained a stricture near the duodenum; distal to this point the pancreatic duct was three times its normal size and fluid in the duct was under pressure. The head of the pancreas, duodenum, and three-fourths of the stomach were removed and continuity established by end-to-end pancreaticojejunostomy, end-to-side choledochojejun-

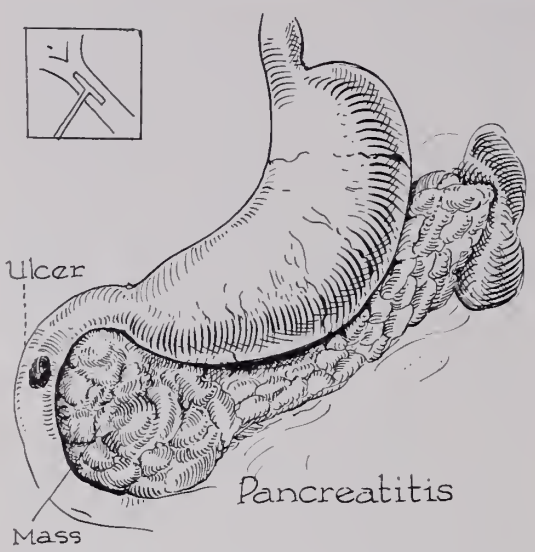


Figure 1.—M. F., 38 year old woman, was found at operation to have a stricture of the pancreatic duct and a large ulcer in the second portion of the duodenum.

ostomy and distal end-to-side gastrojejunostomy. Her course in the hospital was uneventful.

Comments—The incidence of peptic ulcer in pancreatic duct obstruction is unknown. It may be that since pancreatic duct obstruction is usually intermittent, peptic ulcer may not occur with any degree of constancy. In the face of localized pancreatic ductal obstruction, especially that which occurs in the head, caudal pancreaticojejunostomy has been recommended for decompression of the duct. Under such circumstances the pancreatic flow, having been diverted away from the duodenum, cannot be expected to neutralize the acid content of the stomach. It will be of interest to ascertain if patients undergoing pancreaticojejunostomy and whose proximal duct remains occluded will have an increased incidence of peptic ulceration.

SUMMARY

The records of 12 patients undergoing total pancreatectomy at Touro Infirmary and Charity Hospital, during the period 1945 to 1957, have been reviewed in reference to their developing diabetes. One patient died in a state of refractory diabetic acidosis on the eleventh postoperative day. Another death was ascribed to insulin shock. All patients who survived the immediate postoperative period developed diabetes.

A comparison is made between the diabetes associated with pure beta cell deficiency as produced by alloxan administration and with pancreatectomy. With pancreatectomy the diabetes is milder and the question as to whether this is due to an antidiabetic factor in the pancreas or to a decrease in gluconeogenesis because of decreased intestinal absorption of foodstuffs from loss of the external pancreatic secretion has not been completely answered.

Some problems in management of the diabetic who has undergone pancreatectomy are given in a case report. These patients require constant supervision.

The exocrine function of the pancreas is discussed in relation to peptic ulcer. Exclusion of pancreatic secretion from the duodenum in the experimental animal when the pancreas is not removed leads to duodenal ulcer.

A case report is given of a patient whose pancreatic duct obstruction was associated with a large peptic ulcer in the second portion of the duodenum. It is conjectured that the obstruction of the pancreatic duct may have been the underlying cause of the ulcer. As a result of ductal block, alkaline pancreatic secretion could not gain entrance into the duodenum to neutralize the acid flow from the stomach and the ulcer. That the ulcer may have developed first and the stricture of the pancreatic duct resulted from the scarring in the base of the ulcer does not appear likely from the history and findings at the initial operation in 1953.

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RECENT ADVANCES IN THE TREATMENT OF DEAFNESS *

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Shreveport

During the past twenty years tremendous strides have been made in the surgical treatment of conductive deafness. Moreover, since the advent of the sulfonamides and antibiotics, the bold, lifesaving but sometimes destructive postaural mastoid operation for acute suppuration of the temporal bone began to be replaced by a new type of endaural surgical procedure performed under magnification in a clean surgical field to preserve or restore hearing. In this presentation these recent advances will be discussed with particular emphasis on treatment of certain types of deafness, perforations of the tympanic membrane, and pathologic conditions of the middle ear by means of the fenestration operation, mobilization of stapes, myringoplasty and tympanoplasty.

FENESTRATION OPERATION

The fenestration operation is now an accepted method of correction of deafness due to otosclerosis. Many technical improvements have been made since the operation was developed, in 1938, by Lempert,[1] who obtained many of his ideas from Sourdille.[2] However, Lempert's modifications of Sourdille's original suggestions made the procedure practical. He introduced the endaural approach, the one stage procedure and the use of an electric drill to make the fenestra. The fenestration operation, as performed today, except for perfected details in construction of the fenestra, still utilizes the basic principles laid down by Lempert in 1938, namely, restoration of passage of air borne sound to the labyrinth by creation of a fistula into the horizontal semicircular canal with a plastic skin flap derived from the meatus and attached to the tympanic membrane to cover the fistula and seal the tympanic cavity (Fig. 1).

Like many important advances in medicine, the fenestration operation at first was received with extreme skepticism and real

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Figure 1.—Note plastic skin flap covering fistula in horizontal canal.

opposition. Many improvements were introduced, such as removing the incus and head and neck of the malleus, and the nov-ovalis technic,[3] in which the fenestra was made farther forward into the ampulla of the horizontal semicircular canal. Shambaugh [4] also suggested important technical improvements.

The early experience with the fenestration operation was disappointing because of the frequent occurrence of osteogenic closure of the newly created "fenestra." The common causes of closure were found to be bone dust in the fenestra, improper enchondralized fenestra and failure to get the periosteum of the skin flap in contact with the endosteal membrane of the fenestra. Technics have been devised so that the incidence of closure is now less than 5 per cent.

Today, the most common cause of failure appears to be postoperative serous labyrinthitis. Much study is being done to determine the cause of this complication. Blood in the fenestra, different irrigating solutions, and infection have been incriminated. We have every reason to believe that the incidence of serous labyrinthitis will eventually be greatly reduced. Today an experienced otologist can offer ideal candidates for the fenestration operation good results in 80 to 90 per cent of cases, in contrast to 30 to 35 per cent in the early experience (1938-1941) with this procedure.

STAPES MOBILIZATION

In 1952 Rosen [5] reintroduced stapes mobilization as a means of treating otosclerotic deafness. His original technic consisted in lifting the drum out of its sulcus and folding it upward upon itself, thus bringing into view most of the middle ear cavity (Fig. 2). A curved instrument is placed over the anterior aspect of the long process of the incus until the neck of the stapes is encountered. Intermittent pressure is applied on the neck in a posterior direction to obtain mobilization. Approximately 33 per cent of fixed stapes could be mobilized by this technic. Fracturing the crus of the stapes was the main reason for failure. Goodhill [6] was one of the first to recognize that a better technic with less crural fractures was necessary to make the operation practical. He described the transincudal technic, whereby pulsating pressure is applied by a curved pick into the end of the long process of the incus. This transmits pressure to the head of the stapes, pushing the footplate into the oval window.



Figure 2. — Exposure in stapes mobilization. Elevation of ear drum exposes incudostapedial joint.

House [7] suggested use of a curved pick directly on the head of the stapes to obtain mobility. A large amount of pulsating force can be transmitted through the head of the stapes down both crura to the footplate.

Failure to mobilize the footplate by pressure on the stapedial neck led to the direct footplate approach.[8] The direct method of mobilization is accomplished with a sharp pointed explorer or pick. The instrument is gently wedged, for less than 0.5 mm., into the soft area between the long rim of the oval window and the periphery of the footplate itself, usually at the inferior margin. The point of the explorer is moved ever so slightly in and out as if prying loose a lid. When this maneuver is successful, one can suddenly see the entire footplate, tendon,

and crura moving. Improvement of hearing can be obtained whether or not the crura have been fractured during attempts to mobilize at the stapedial neck. (Fig. 3).

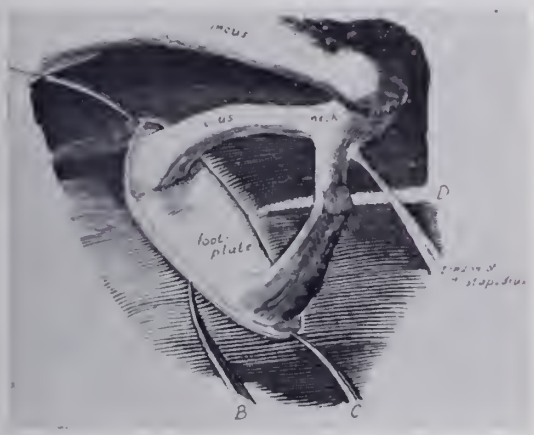


Figure 3.—Direct approach in mobilizing stapes through footplate.

The most recent addition is the fenestra ovalis technic of Rosen.[9] It consists in creating an opening into the vestibule through the rigid footplate of the stapes with a sharp pointed explorer or a sharp hooked instrument called the oval window fenestrator. The site of the window is in the posterior inferior quadrant of the footplate, either at the periphery or through the body of the footplate as close to the junction of the posterior crus as possible.

In summary the most widely used technic of stapes mobilization consists first in attempting to obtain mobility through the indirect approach. If mobilization cannot be easily achieved by this method, the direct footplate approach should be tried before fracture of the crura is obtained. If mobility cannot be accomplished by the direct approach, making a fenestra in the footplate has been advocated. There is still considerable controversy regarding this procedure, and at present it is performed by a relatively small number of otologists. It should be emphasized that the operating microscope is of extreme importance in performing this type of surgery.

MYRINGOPLASTY AND TYMPANOPLASTY

Until recently patients with advanced disease of the middle ear were destined to suffer intermittent infections with conductive deafness or to submit to a radical mastoid operation which would eliminate the pathologic process but would result in permanent conductive deafness. Recently, two German otologists, Wullstein [10] and Zöllner,[11] devised operations by which hearing can be improved and at the same time disease of the ears can be eradicated. These procedures are called tympanoplasties.

Tympanoplasty begins with thorough removal of the pathologic changes within the temporal bone. It is necessary to reconstruct a functioning alignment of structures for conduction of air borne sound by using the conditions present in the middle ear and closing or replacing the partially or completely destroyed drum with a free skin graft. Two functioning fenestra are necessary for improvement in hearing after tympanoplasty. This means that sound pressure difference and phase difference must exist between the two windows.

The pathologic alterations within the middle ear of patients with chronic otitis media vary considerably. Each ear must be evaluated at the time of operation so that the proper surgical steps can be taken to remove all the disease and obtain maximum hearing improvement. The pathologic changes within the middle ear of patients with chronic otitis media may be classified into four types.

Type I. Perforations of the drum after trauma or an old infection, in which the tympanic cavity is no longer inflamed, the ossicular chain is intact and otitis media has not recurred. In this type the outer layer of epithelium is removed from the tympanic membrane surrounding the perforation, and a corresponding full thickness skin graft is taken from behind the ear and applied to the prepared bed (Fig. 4).

Type II A. Chronic otitis with intact and freely movable ossicular chain.

Type II B. Chronic otitis media with a partially damaged but functionally intact ossicular chain, and practically undisturbed transmission of sound to the inner ear.

Types II A and II B both require modified radical mastoidectomy with removal of all disease. Care is taken to preserve a small bridge of bone to save the ossicular chain. After all disease has been removed and the

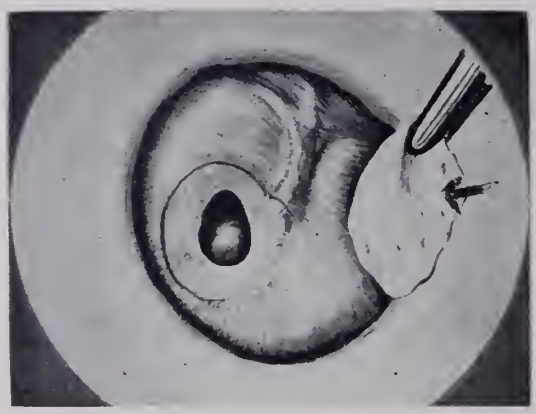


Figure 4.—Note epithelium removed from outer layer of tympanic membrane to prepare site for skin graft (arrow points to skin graft).

round window and eustachian tube have been inspected, an effort is made to preserve the mucous membrane on the promontory. The epithelium of the remainder of the drum and its margin must be removed so that a free skin graft may be used in this area to close the tympanic cavity. The graft is placed over the handle of the malleus, the preserved bridge, the bony facial canal and the drum (Fig. 5).

Type III. Chronic otitis media with interruption of the ossicular chain and a mobile intact stapes. This should be treated

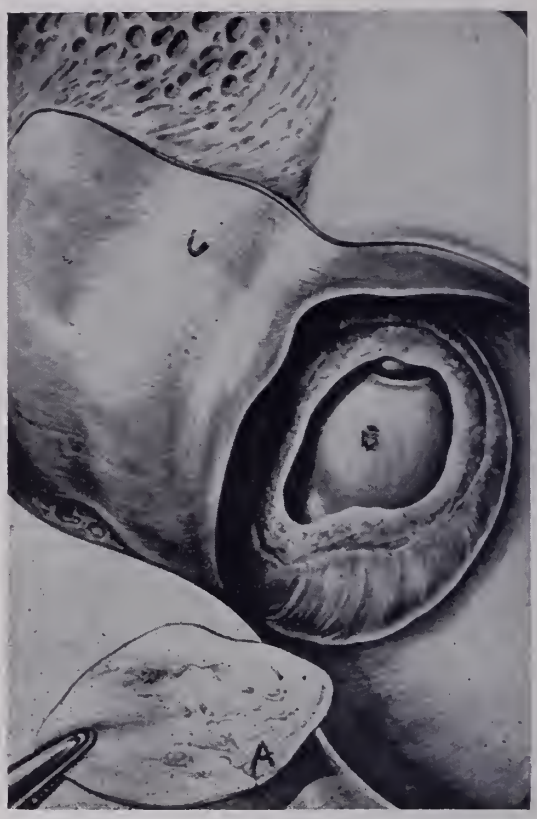


Figure 5.—Types 2A and 2B tympanoplasties. (A) Skin graft. (B) Perforation prepared for skin graft. (C) Flap turned back into mastoid bowl.



Figure 6.—Type 3 tympanoplasty. Note skin flap in contact with head of stapes.

by a radical mastoid operation with removal of the bridge and remaining portions of the malleus and incus and insertion of a skin graft in the tympanic cavity as previously described except that one must be sure that the graft is in contact with the head of the stapes to obtain maximum hearing (Fig. 6).

Type IV. Chronic otitis media with absence of the ossicular chain, and partial destruction or complete immobilization of the stapes. Such cases require tympanoplasty as described for type III. The horizontal semicircular canal should be burnished, but not opened up, as preparation for a fenestration operation to be performed later. This procedure should be performed as soon as the operative cavity is dry and epidermized. Some advocate performance of the fenestration operation in one stage.

SUMMARY

Many types of deafness can now be improved by surgical procedures developed within the last two decades. Thus, results of the fenestration operation performed on ideal candidates by experienced otologists are good in 80 to 90 per cent of cases. Interest has recently been revived in a simpler operation for improving hearing in patients with otosclerosis, which is known as stapes mobilization. Finally, patients with chronic otitis media need no longer suffer intermittent attacks of infection resulting in conductive deafness or submit to radical mastoidectomy, which would eradicate the disease but leave them permanently deaf. By means of tympanoplasty, not only is the disease eradicated but hearing is improved.

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SUPPORT OF NATIONAL VOLUNTARY HEALTH ORGANIZATIONS

The time has come when physicians, through organized medicine, must support the position and methods of national voluntary health organizations. The occasion for this is the development in our local communities and on a national scale of a situation in which there is regrettably a necessity to support, and consequently, to defend the activities of our national voluntary health organizations against the encroachments on the part of United Funds.

The national voluntary health organizations concerned are such as the American Heart Association, the Polio Foundation, the Cancer Society, the National Tuberculosis Association, and other groups who have formed themselves into an association, or society, devoted to a limited or specific purpose, such as the prevention and control of a single disease. A conflict has developed apparently between the interests of these organizations and the operations of the United Funds.

United Funds, locally and nationally, came into being in order to reduce the total number of drives for financial contributions in support of some local and some national charitable endeavors. For reasons of uniformity and because the topic of health has an obvious emotional appeal, it was planned to include the national voluntary health organizations in these respective local and national United Funds. Some of the funds agreed to inclusion; others did not, usually on a local basis.

The arguments for the operation of United Funds are reasonably presented, and usually grouped around the idea of uniformity and efficiency. For such purposes, and for charitable endeavors, the arguments are valid. When, however, the operations of the United Fund organization include medical projects, we find that these matters of medical moment are determined and directed by lay individuals established in positions of authority, and they are making decisions which concern medicine. Various local societies have withdrawn from the operations of United Fund. For instance, in the early years the Heart Association participated in over 450 United Funds. The result was not satisfactory to its members and now it has withdrawn from all but 270 of these Funds.

For various reasons connected with the interests of the United Fund on a national basis, pressures were exerted of an unusual degree to stop this trend. The dispute reached the floor of the House of Delegates of the American Medical Association, and a debate explaining and supporting all sides of the argument was very vigorous. Following this the House adopted the following

statement offered in the form of amendments from the floor:

"1. That the House of Delegates reiterate its commendation and approval of the principal voluntary health agencies.

"2. That it is the firm belief of the American Medical Association that these agencies should be free to conduct their own programs of research, public and professional education, and fund raising in their particular spheres of interest.

"3. That the House of Delegates respectfully requests that the American Medical Research Foundation take no action which would endanger the constructive activities of the national voluntary health agencies.

"4. That the Board of Trustees continue actively its studies of these perplexing problems looking forward to their ultimate solution."

The decisive argument influencing the members of the House of Delegates in their decision was that in the raising, distribution, and use of funds designed to help matters of medical importance, such as the national voluntary health organizations, decisions should be made by physicians, and that the members of organized medicine should not allow themselves to endorse or be put in a position of being dictated to by lay organizations.

In such a way, the intrinsic worth of the activities of the national voluntary health organizations will be maintained, the devotion and zeal of its own lay and medical members will be utilized, and the accumulated skill and experience of each organization will continue to provide valuable guidance in its operation.

It was recognized that the several national voluntary health organizations had contributed great assistance and support to organized medicine in their contributions in the past. They had assisted in telling medicine's story to the public, and they had also been of great value in securing the position of the individual physician as the first and best line of defense against any disease.

The position taken by the House of Delegates of the American Medical Association should have the commendation of physicians everywhere, who should approve the fundamental wisdom of rendering unto Caesar the things that are Caesar's.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

REPORT ON ACTIONS OF THE HOUSE OF DELEGATES AMERICAN MEDICAL ASSOCIATION 107th ANNUAL MEETING June 23-27, 1958 San Francisco

The United Mine Workers of America Welfare and Retirement Fund, Social Seurity coverage for self-employed physicians, relations with voluntary health organizations, veterans' medical care, the Medicare program, the Association's Washington Office and over-all legislative system, the medical aspects of hypnosis and the advertising of over-the-counter medications were among the variety of subjects acted upon by the House of Delegates at the American Medical Association's 107th Annual Meeting held June 23-27 in San Francisco.

Dr. Louis M. Orr, urologist of Orlando, Fla., was chosen unanimously as president-elect for the coming year. Dr. Orr, who in recent years has been vice speaker of the House of Delegates and chairman of the A.M.A. Committee on Federal Medical Services, will become president of the American Medical Association at the June, 1959, meeting in Atlantic City. He then will succeed Dr. Gunnar Gundersen of La Crosse, Wis., who became the 112th president at the Tuesday night inaugural ceremony in the Rose and Concert Rooms of the Sheraton-Palace Hotel.

The 1958 Distinguished Service Award of the American Medical Association was voted to Dr.

Frank Hammond Krusen, professor of physical medicine and rehabilitation at Mayo Foundation, Rochester, Minn., for his outstanding achievements and contributions in the field of physical medicine and rehabilitation. For only the fourth and fifth times in A.M.A. history, the House also approved special citations to laymen for outstanding service in advancing the ideals of medicine and contributing to the public welfare. Recipients of these awards were Mrs. Charles W. Sewell of Otterbein, Ind., who has spent 45 years in rural health work, and Gobind Behari Lal, Ph.D., distinguished science writer and Pulitzer prize winner.

United Mine Workers

Major discussion of relations between medicine and the UMWA Welfare and Retirement Fund centered on a reference committee report which concurred in a Board of Trustees opinion that final action on two resolutions adopted in December, 1957, should be postponed until the final report of the Commission on Medical Care Plans is received.

One of those resolutions, Number 20, declared that "a broad educational program be instituted at once by the American Medical Association to inform the general public, including the beneficiaries of the Fund, concerning the benefits to be derived from preservation of the American right to freedom of choice of physicians and hospitals as well as observance of the 'Guides to Relationships Between State and County Medical Societies and the UMWA Welfare and Retirement Fund' adopted by this House last June." The other resolution, Number 24, called for the appropriate A.M.A. committee or council to engage in conferences with third parties to develop general principles and policies which may be applied to their relationships with members of the medical profession.

In explaining its position that final action on the two resolutions should be taken only after proper study, the reference committee said it "anticipates that the final report of the Commission on Medical Care Plans will contain recommendations serving to clarify the relationships between the medical profession, the patient and third parties, and the committee has been assured that this can be expected." The committee also urged the Commission to present its recommendations no later than December, 1958.

The House of Delegates, however, by a vote of 110 to 72, adopted a floor amendment "that this section of the Reference Committee report be amended to show that our A.M.A. Headquarters Staff is directed, under supervision of the Board of Trustees, to proceed **immediately** with the campaign which was originally ordered at Philadelphia last December, that no further delays will be tolerated, and that the Council on Medical Service be relieved of any further responsibility in this matter."

Social Security Coverage

In considering seven resolutions dealing with the inclusion of self-employed physicians under the Social Security Act, the House disapproved of three which called for polls or a referendum of the A.M.A. membership, one which favored state-by-state participation in Social Security, and two which called for compulsory inclusion on a national basis. Instead, the House adopted a resolution pointing out that "American physicians always have stood on the principle of security through personal initiative," and reaffirming unequivocal opposition to the compulsory inclusion of self-employed physicians in the Social Security system.

On the question of polls, the House expressed the opinion that any poll should be taken on a state-by-state basis and the results transmitted to the A.M.A. delegates from that state. It also pointed out that since there is no provision in the Constitution and Bylaws for a referendum of members, such a referendum would usurp the duties and prerogatives of the House of Delegates, which is the Association's policy-making body.

Voluntary Health Organizations

Dealing with problems that have arisen in the raising and distributing of funds since development of the concept of united community effort, the House adopted the following statement offered in the form of amendments from the floor:

"1. That the House of Delegates reiterate its commendation and approval of the principal voluntary health agencies.

"2. That it is the firm belief of the American Medical Association that these agencies should be free to conduct their own programs of research, public and professional education and fund raising in their particular spheres of interest.

"3. That the House of Delegates respectfully requests that the American Medical Research Foundation take no action which would endanger the constructive activities of the national voluntary health ageneies.

"4. That the Board of Trustees continue actively its studies of these perplexing problems looking forward to their ultimate solution."

Veterans' Medical Care

Pointing out that the Federal government spent $619,614,000 on hospitalized medical care of veterans in VA hospitals in 1957, of which about 75 per cent had non-service-connected disabilities, and that ways and means of obtaining economy in Federal government are allegedly being sought by Congress at this time, the House urged Congressional action to restrict hospitalization of veterans at VA hospitals to those with service-connected disabilities. It also recommended that the American Medical Association suggest to the Dean's Committees that they restrict their activities to Veterans Administration hospitals

admitting only patients with service-connected disabilities.

The Medicare Program

In disapproving a resolution calling for repeal, modification or amendment of Public Law 569, the House took the position that desired changes in the Medicare program could be accomplished through modification of the present implementing directives without the necessity for new legislation. The House reaffirmed the action taken last year in New York recommending that the decision on type of contract and whether or not a fee schedule is included in future contract negotiations should be left to individual state determination. Also reaffirmed was the Association's basic contention that the Dependent Medical Care Act as enacted by Congress does not require fixed fee schedules; the establishment of such schedules would be more expensive than permitting physicians to charge their normal fees, and fixed fee schedules would ultimately disrupt the economics of medical practice.

Washington Office

The House adopted a resolution requesting the Board of Trustees to make an immediate survey and re-evaluation of "the functions and effectiveness of the over-all A.M.A. legislative system, including the Washington office, in the light of present-day needs of the government, public and medical profession alike for effective liaison between government and medicine on all matters affecting the public's health and adequate, prompt and accurate transmittal to the full membership of the A.M.A. of information on all current public issues in which the physician has a direct interest." The House asked that the Board of Trustees implement, as rapidly as possible, all changes and additions that its survey discloses are desirable to achieve the basic purpose of the resolution, "effective public and government relations."

Medical Aspects of Hypnosis

A Council on Mental Health report on "Medical Use of Hypnosis" was approved by the House, which recommended that it be published in the Journal of the American Medical Association with bibliography attached. The report stated that general practitioners, medical specialists and dentists might find hypnosis valuable as a therapeutic adjunct within the specific field of their professional competence. It stressed, however, that all those who use hypnosis need to be aware of the complex nature of the phenomena involved. Teaching related to hypnosis should be under responsible medical or dental direction, the report emphasized, and should include the indications and limitations for its use. The report urged physicians and dentists to participate in high level research on hypnosis, and it vigorously condemned the use of hypnosis for entertainment purposes.

Over-the-Counter Medications

The House endorsed recommendations by the Public Relations Department that:

The A.M.A. join with other interested groups in setting up an expanded voluntary program, coordinated by the National Better Business Bureau, which will seek to eliminate objectionable advertising of over-the-counter medicines.

The A.M.A. counsel with the National Better Business Bureau in the selection of a physicians' advisory committee.

The established facilities of the A.M.A., such as the Chemical Laboratory, the offices of the various scientific councils, and the Bureau of Investigation, be made available, so far as is feasible, to aid in the carrying out of this program.

The Public Relations Department continue its liaison work with the various groups involved and assist in the development and operation of this program in any way possible.

The A.M.A. become a sustaining member of the National Better Business Bureau, giving evidence of its willingness and desire to support this organization in its worthwhile activities.

Miscellaneous Actions

Among a wide variety of actions on many subjects, the House also:

Adopted amendments to the **Constitution and Bylaws** which eliminate the separate offices of Secretary and Treasurer, combining them into one, and which change the titles of the General Manager and Assistant General Manager to Executive Vice President and Assistant Executive Vice President;

Recommended the appointment of a Committee on **Atomic Medicine** and Ionizing Radiation and suggested that it concern itself with informing the American public on all phases of radiation hazards related to the national health;

Approved in principle the admission of the **Virgin Islands Medical Society** as a constituent society of the American Medical Association;

Commended the **Federal Food and Drug Administration** for its untiring efforts in behalf of the public and the profession, and urged all states to review and strengthen their food and drug laws;

Approved the "Suggested Guides for the Organization and Operation of Medical Society **Committees on Aging**," submitted by the Council on Medical Service;

Commended the Committee on Medical and Related Facilities of the Council on Medical Service for its report on the **Hill-Burton** Study and approved its recommendations;

Requested that any funds provided under the Public Assistance provisions of the Social Security Act for **medical care of the indigent** be administered by a voluntary agency such as Blue Shield on a cost plus basis or by a specific agency established by the medical society of the state in which indigent care is rendered;

Directed the Board of Trustees to study prob-

lems pertaining to licensure by **reciprocity** and to consult with the Federation of State Medical Boards in an attempt to find a satisfactory solution;

Urged all members of the House of Delegates to give full consideration to the preliminary report of the Committee on Preparation for **General Practice** and to submit comments and suggestions to that committee;

Expressed the opinion that some operating room experience is valuable and necessary training for all **nurses;**

Recommended that general hospitals, wherever feasible, be encouraged to permit the hospitalization of suitable **psychiatric patients,** and

Approved a **National Interprofessional Code** for physicians and attorneys prepared by the joint liaison committee of the American Medical Association and the American Bar Association.

Opening Session

At the Monday opening session Dr. David B. Allman, retiring A.M.A. president, urged every physician to rededicate himself to the service of mankind and every medical society to strengthen its disciplinary system "to prevent the very few from besmirching the vast majority of us." Dr. Gundersen, then president-elect, said the Association is moving ahead in finding the best possible ways to serve both the public and the medical profession, and he declared there is no reason to believe that its influence and impact will not continue to grow in the times ahead. The Goldberger Award in clinical nutrition was presented to Dr. Virgil C. Sydenstricker, professor emeritus of medicine at the Medical College of Georgia.

Inaugural Ceremony

Dr. Gundersen, in his Tuesday night inaugural address, called upon the medical profession to accept its full responsibilities in promoting better world health, brotherhood and peace, adding that "the time has come when medical statesmanship must be used to augment the methods of political diplomacy." Dr. Gundersen also presented the Distinguished Service Award to Dr. Krusen and the special layman citations to Mrs. Sewell and Dr. Lal. The Shrine Chanters of Oakland, Calif., provided choral numbers during the program.

Election of Officers

In addition to Dr. Orr, the new president-elect, the following officers were selected by the House on Thursday:

Dr. W. Linwood Ball of Richmond, Va., vice president; Dr. E. Vincent Askey of Los Angeles, re-elected speaker, and Dr. Norman A. Welch of Boston, vice speaker.

Dr. Warren W. Furey of Chicago was elected for a five year term on the Board of Trustees, succeeding Dr. E. S. Hamilton of Kankakee, Ill. Dr. Raymond M. McKeown of Coos Bay, Ore., was re-elected for a five year term, and Dr. R. B. Robins of Camden, Ark., was named to fill the unexpired term of Dr. F. J. L. Blasingame. Dr. Leonard W. Larson of Bismarck, N. D., was elected chairman of the Board at its organizational meeting after the Thursday elections.

Dr. George A. Woodhouse of Pleasant Hill, Ohio, was renamed to the Judicial Council. Elected to the Council on Medical Education and Hispitals were Dr. Leland S. McKittrick of Brookline, Mass., to succeed himself, and Dr. John V. Bowers of Madison, Wis., to succeed Dr. Victor Johnson of Rochester, Minn.

Dr. R. B. Chrisman, Jr., of Coral Gables, Fla., and Dr. J. F. Burton of Oklahoma City, Okla., were re-elected to the Council on Medical Service. For the same Council, Dr. Russell B. Roth of Erie, Pa., was named to fill the unexpired term of Dr. H. B. Mulholland of Charlottesville, Va., resigned.

Three members were elected to the Council on Constitution and Bylaws: Dr. William Stovall of Madison, Wis., to succeed Dr. Stanley H. Osborn of Hartford, Conn.; Dr. William Hyland of Grand Rapids, Mich., to fill the unexpired term of Dr. Floyd S. Winslow, deceased, of Rochester, N. Y., and Dr. Walter Bornemeier of Chicago, to replace Dr. Furey.

The House approved a Board of Trustees announcement that Miami Beach will replace Chicago as place of the 1960 Annual Meeting and New York will be the site of the 1961 Annual Meeting. Action was postponed on selection of the city for the 1962 Annual Meeting.

Rising votes of appreciation were given to Dr. Hamilton; Dr. George F. Lull, retiring secretary, and Dr. J. J. Moore, retiring treasurer.

At the Wednesday session of the House the Illinois State Medical Society made another record state society contribution to the American Medical Education Foundation by turning over a check for $177,500 to Dr. Lull, now foundation president.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

AMERICAN ASSOCIATION OF MEDICAL ASSISTANTS

Plans have been made for the Second Annual Convention of the American Association of Medical Assistants to be held at the Palmer House, Chicago, Illinois on October 31, November 1 and 2, 1958.

The American Association of Medical Assistants is made up of men and women employed as assistants in the offices of Doctors of Medicine. The Association was conceived in Kansas City, Kansas, during the fall of 1955, when interested persons from fifteen states met to make plans for a formal organization. The second meeting was held the following year in Milwaukee, Wisconsin at which time a Constitution and Bylaws were adopted and the Association formally set up. During this first official year, a great deal of work was done and the First Annual Convention was held in San Francisco, California in October, 1957. Now, with a membership of nearly 6,000 representing seventeen states, and with the approval of State Medical Societies and the American Medical Association, this Association is well under way.

The purposes of the Association are stated as follows: To inspire its members to render honest, loyal and more efficient service to the profession and to the public which they serve. To strive at all times to cooperate with the medical profession in improving public relations. To render educational services for the self-improvement of its members and to stimulate a feeling of fellowship and cooperation among the Societies. To encourage and assist all unorganized medical assistants in forming local and State societies. This Association is declared to be non-profit. It is not nor shall it ever become a trade union or collective bargaining agency.

Several states now offer fine educational courses with the cooperation of their colleges and universities which will help the assistant to become more valuable in the doctor's office. Physicians realize that the well-trained assistant is an asset to their profession and that these courses will relieve them of much of the time-consuming work of on-the-job training. The American Association plans to offer courses on a national level as soon as a suitable curriculum has been set up.

Membership in medical assistants societies throughout the country has provided an opportunity for the assistant to benefit from the many fine lectures, workshops and seminars as a part of regular programs.

The American Association of Medical Assistants is now offering its members a comprehensive insurance program. This is a salary replacement (sickness and accident) plan with optional major hospital, nurse expense and surgical benefits.

It is to the advantage of the medical profession to have their medical assistants affiliated with this organization.

The American Association of Medical Assistants would welcome the opportunity to give information concerning the organization and to assist with the formation of County and State Societies. Inquiries may be addressed to Miss Hallie Cummins, R.R.L., Chairman of the Public Relations Committee, Medical Record Library, Caro State Hospital for Epileptics, Caro, Michigan.

It is hoped that an organization of Medical Assistants can be formed in New Orleans, and eventually throughout Louisiana. To this end, will all those interested please write or telephone Miss Margaret L. Marks, c/o Dr. Philip H. Jones, 4500 Magnolia Street, New Orleans 15, La. Telephone TWinbrook 9-1589.

SOUTHWEST LOUISIANA GRADUATE MEDICAL ASSEMBLY

MAJESTIC HOTEL

Lake Charles, Louisiana

September 12 & 13, 1958

PROGRAM

FRIDAY, SEPTEMBER 12, 1958

Morning Session:

9:00- 9:30	Opening Ceremonies
9:30-10:00	"Evaluation and Management of Edema" William Sodeman, M. D., Chairman Department of Medicine, Jefferson Medical College, Philadelphia Pennsylvania
10:00-10:30	"Pancreatitis; It's Diagnosis and Treatment" Howard Mahorner, M. D., Professor of Surgery, Louisiana State University, School of Medicine, New Orleans, Louisiana
10:30-10:45	Visit Exhibits
10:45-11:15	"Surgery During Pregnancy" Isadore Dyer, M. D., Professor of Obstetrics, Tulane University School of Medicine, New Orleans, Louisiana
11:15-11:45	"The Toxicology of Organic Poisons" Rudolph J. Muelling, M. D., Associate Professor of Pathology, Louisiana State University, School of Medicine, New Orleans, Louisiana
12:30- 2:00	Round Table Luncheons

Afternoon Session:

2:00- 2:30	"Present Status of Treatment of Rheumatic Fever" R. L. Fowler, M. D., Chairman Department of Pediatrics, Louisiana State University, School of Medicine, New Orleans, Louisiana
2:30- 3:00	"Low Back Pain" Thomas H. Blake, M. D., Chairman Department of Orthopedics, University of Mississippi Medical Center, Jackson, Mississippi
3:00- 3:30	"The Toxicology of Important Heavy Metals and Inhalant Poisons" R. J. Muelling, M. D.
3:30- 3:45	Visit Exhibits
3:45- 5:00	Clinico Pathological Conference

SATURDAY, SEPTEMBER 13, 1958

Morning Session:

9:00- 9:15	Visit Exhibits
9:15- 9:45	"Hemoptysis; Causes and Management" James D. Hardy, M. D., Professor and Chairman, Department of Surgery, The University of Mississippi Medical Center, Jackson, Mississippi
9:45-10:15	"The Hepatic Coma, Problem Current Status of Recognition and Therapy" J. R. Snavely, M. D., Chairman Department of Medicine, The University of Mississippi Medical Center, Jackson, Mississippi
10:15-10:30	Visit Exhibits
10:30-12:00	Panel Discussion "Management of the Jaundiced Patient" Moderator: William Sodeman, M. D. Panelists: J. R. Snavely, M. D., Howard Mahorner, M. D., J. D. Hardy, M. D., R. J. Muelling, M. D., R. L. Fowler, M. D.
12:30- 2:00	Round Table Luncheons

Afternoon Session:

2:00- 2:30	"Use of Digitalis" William Sodeman, M. D.
2:30- 3:00	"Common Errors in the Treatment of Fractures" T. H. Blake, M. D.
3:00- 3:15	Visit Exhibits
3:15- 3:45	"Diagnosis and Treatment of Common Peripheral Vascular Diseases" Howard Mahorner, M. D.
3:45- 4:15	"Use of Mercurial Diuretics in Toxemias of Pregnancy" Isadore Dyer, M. D.
4:15- 4:45	"Nephritis" R. L. Fowler, M. D.
7:30	Cocktails and Dinner Dance

Note: Entertainment and Luncheons planned for visiting wives.

SOUTHEASTERN SURGICAL CONGRESS 1959 PRIZE SCIENTIFIC PAPER AWARD

The Southeastern Surgical Congress announces its Annual Prize Scientific Paper Award for 1959. The best unpublished contribution on surgery or allied subjects will be awarded $100.00 and expenses for the author to attend its next Annual Meeting in Miami Beach, Florida. The second place winner will receive $50.00 cash and the third place winner will receive $25.00 cash.

The contest is open to residents in AMA approved residencies in the states of Alabama, Dis-

trict of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virgnia and West Virginia. Three copies of the paper should be sent before December 1, 1958, to the Councilor of the state in which the resident is living. The Councilor's name and address may be obtained by writing to the home office of the Southeastern Surgical Congress at 1032 Hurt Building, Atlanta 3, Georgia.

The winner will present his paper before the Congress Assembly in Miami Beach, Florida, at the Deauville Hotel, Miami, March 9-12, 1959. The winner's expenses to the meeting will be borne by the Congress and a prize of $100.00 cash will be awarded at the annual banquet.

The Southeastern Surgical Congress reserves the right to submit the paper to the Editorial Board of its publication, THE AMERICAN SURGEON, for publication. If the Editorial Board rejects the paper, the author is then free to seek publication elsewhere. All manuscripts must be typewritten in English in a form suitable for submission for publication.

TETANUS-DIPHTHERIA TOXOID CALLED SAFE FOR ADULTS

Adolescents and adults can now be immunized against diphtheria and tetanus without developing severe side reactions, a recent study has shown.

This was reported in the March 29 Journal of the American Medical Association by three California doctors who inoculated 62 adults with a new combined toxoid with favorable results.

Childhood immunization against diphtheria and tetanus is effective and safe. There has been a growing need for extending this childhood program into adolescent and adult groups, but, unfortunately, the frequency of their severe local and systemic reactions to existing toxoids has prevented widespread use, the doctors said.

They added that previous studies indicated that a satisfactory combined tetanus and diphtheria toxoid for adults could be produced and used. The new serum (Adult Dip-Tet) was prepared in accordance with specifications contained in the National Institutes of Health's minimum requirements. Used by the armed forces since 1955, the toxoid has only recently become available to physicians through normal distribution channels.

In the California test, 62 adults, more than half of whom were over 35 years of age, were given two injections of the combined toxoid at four-week intervals.

"All 62 adults developed a good, solid immune status in response to two injections," the doctors reported. More important, they said "no severe local or systemic reactions were encountered following either of the immunizing injections."

EPIDEMIC DIARRHEA CAUSED BY VIRUS

Two outbreaks of epidemic diarrhea among hospitalized infants were found to have been caused by a virus, a group of New York researchers reported.

This is "the first instance in which a virus isolatable by laboratory methods has been shown to be a cause of diarrhea," they said in the March 29 Journal of the American Medical Association.

Bacteria or parasites are known to be a cause of some diarrheal diseases, but in about 65 per cent of cases, no bacterial or parasitic cause can be found. It had generally been assumed that a number of viruses may be responsible for these illnesses, but a definite viral agent had never been isolated, they said.

In the New York outbreaks, ECHO virus type 18 was found to be associated with every case.

The two outbreaks occurred in July 1956 at New York Hospital. Twelve of 21 infants in the premature nursery became ill. A detailed survey failed to show any noninfectious or bacterial cause for the outbreak.

Four days after the end of the first outbreak a second occurred in a sick infant ward in the same hospital. Five babies became ill. The infection was apparently carried from one nursery to the other by a nurse from whom the virus had been isolated.

MEDICAL PROGRESS, 1958

Twenty-five exhibits have already been booked for the gigantic display which is sponsored by the Shreveport Medical Society in cooperation with the Louisiana State Medical Society for showing at the Louisiana State Fair in Shreveport, October 18-26, the general chairman reports. It is believed that the exhibits will be so numerous and extensive that an entire building at the fair grounds will be required to house them. Fair officials estimate that 300,000 people visited the Medical Progress exhibits last year. In addition, there will be displays on a wide variety of medical subjects sponsored by specialty groups, medical schools, the dental profession, the United States Air Force and many other agencies. Plans are also being made to offer a continuous showing of medical films for laymen.

SMA EXPECTS RECORD ATTENDANCE AT NEW ORLEANS MEETING

Advance registrations for the annual meeting of the Southern Medical Association already have booked more than half of the available hotel rooms in New Orleans and plans are now being made to reserve several hundred additional rooms in the city's finest motels. V. O. Foster, SMA executive secretary-treasurer, said over 1700 registrations have been received by his office with the meeting still five months away. According to Mr. Foster, this is the biggest advance registration

in the association's history. The program for the meeting is shaping up very well. To date, 13 medical school alumni associations have arranged to conduct reunions during the meeting and 15 others are expected to do the same. SMA headquarters estimate that total registration will exceed 7000. By comparison, the 1955 meeting of the SMA in Houston attracted 4000, the 1956 meeting in Washington, D. C. registered 5000 and the meeting in Miami Beach last year was attended by 6000. Despite the big rush in registrations, the SMA assures all doctors that it will find accommodations for those who submit their requests for reservations well in advance. The SMA meets November 3-6.

NEWS FROM OCHSNER FOUNDATION HOSPITAL

Dr. Francis E. LeJeune, New Orleans, was elected Treasurer of the American Laryngological Society at its meeting, May 19, in San Francisco.

Dr. Willoughby E. Kittredge, New Orleans, presented a paper on "Subcapsular Nephrectomy" at the American Medical Association meeting in San Francisco, June 24.

Drs. Merrill O. Hines and Patrick H. Hanley, New Orleans, attended the American Proctological Society meeting in Los Angeles, June 30 - July 2. Dr. Hines presented a paper on "Polyps in Children" while Dr. Hanley presented a paper on "Management of Imperforate Anus." Dr. Hanley also presented and discussed two movies: "Subtotal Colectomy and Simultaneous Skin Graft Ileostomy for Acute Fulminating Ulcerative Colitis" and "Excision of Huge Sacrococcygeal Meningocele."

FUTURE MEETING PLANS THE AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS

Future meeting plans of The American College of Obstetricians and Gynecologists are as follows:

1959—Atlantic City, New Jersey—April 5-9
Headquarters—Traymore
All activities except Breakfast Conferences and banquet in Convention Hall

1960—Chicago, Illinois—April 24-27
Headquarters—Morrison Hotel
All activities in hotel

1961—Boston, Massachusetts—April 16-21
(If no convention hall is available this meeting will have transferred to The Americana, Bal Horbour, Miami Beach, Florida

ACADEMY OF PSYCHOSOMATIC MEDICINE

The fifth annual meeting of The Academy of Psychosomatic Medicine will be held October 9-11, 1958, at the Park Sheraton Hotel in New York City. The program will be devoted to "The Psychosomatic Aspects of Internal Medicine" and will include formal papers, panel discussions and luncheon conferences. The meeting will be open to all scientific disciplines, as well as psychologists, social workers and nurses. Information may be obtained from Dr. Bertram B. Moss, Suite 1035, 55 East Washington Street, Chicago 2, Illinois.

Doctors in good standing in the county medical society and clinical psychologists with degree of Ph.D. are eligible to join the Academy.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.

Applications for certification (American Board of Obstetrics and Gynecology), new and reopened, Part I, and requests for re-examination Part II, are now being accepted. Deadline date for receipt of all such applications is September 1, 1958. No applications can be accepted after that time.

The members of the American Board of Obtetrics and Gynecology wish to announce that at the recent final examinations for certification, the total of 280 certifications out of a group of 383 candidates examined.

It is expected that the new Bulletin of the American Board of Obstetrics and Gynecology will be available some time during the month of July. A copy of this booklet may be obtained by writing of Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

—o—

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

Mrs. Edward M. Harrell, president, has appointed the following Chairmen of Standing Committees for 1958-59:

Archives—Mrs. C. Grenes Cole, New Orleans; A.M.E.F.—Mrs. Creighton Shute, Opelousas; Bulletin—Mrs. Robert Young, Abbeville; Civil Defense—Mrs. Julius Daigle, Paincourtville; Commemorations Fund—Mrs. Dwight Danburg, Greenwell Springs; Doctor's Day—Mrs. H. Wayne Richmond, Oakdale; Editor of Publications—News and Views, Mrs. Robert E. Rougelot, New Orleans; Essay Contest—Mrs. Eldon E. Merse, Melville; Finance—Mrs. J. Boring Montgomery, Lafayette; Health—Mrs. B. M. Woodard, Lake Charles; Historian—Mrs. J. Y. Garber, Lake Charles; Legislation—Mrs. Albert L. McQuown, Baton Rouge; L.O.S.L.—Mrs. John M. Hopper, Baton Rouge; Mental Health—Mrs. Joe R. Ferguson, Jr., Lafayette; Recruitment—Mrs. Joseph P. Musso, White Castle; Organization—Mrs. J. Theron Willis, Alexandria; Press and Publicity—Mrs. Branch J. Aymond, New Orleans; Printing—Mrs. Albert

W. Habeeb, Metairie; Program—Mrs. William L. Zink, Lafayette; Public Relations—Mrs. Eugene H. Countiss, New Orleans; Revision of By-Laws—Mrs. W. A. K. Seale, Sulphur; Romance and Research of Medicine—Mrs. Roy C. Young, Shreveport; ToDay's Health—Mrs. Henson Coon, Monroe; Volunteer Services—Mrs. Milton Honigman, Alexandria.

Mrs. Branch J. Aymond,
Press and Publicity.

—o—

BOOK REVIEWS

Fundamentals of Clinical Fluoroscopy, with Essentials of Roentgen Interpretation, Second Revised Edition; by Charles B. Storch, M.D., New York, Grune & Stratton, 1957, pp. 305, Illus., 318. Price $8.75.

This is the second edition of a useful and popular manual on practical fluoroscopy. As in the previous edition it is comprehensive, well-written and confined to important and established principles. The illustrations are excellent and outstanding. The busy reader is able to grasp the fundamental principles in the minimum time. The questions are thought-provoking and comprehensive.

The author has thoroughly revised the sections of the first edition. He has added new sections on neoplastic disease of the fundus, congenital heart disease, small bowel examination, intestinal obstruction, fluoroscopy of the gall bladder, and 100 additional illustrations. The approaching popular increase in the use of image intensification and cineradiography has been kept in mind in the revision of the new edition.

There are nine chapters, a bibliography and an index in the book. In general, this is a valuable and reliable aid for the medical student and for every tions of clinical fluoroscopy.
physician interested in the indications and limita-

J. N. Ané, M.D.

Medical Department, United States Army, Surgery in World War II. Ophthalmology and Otolaryngology.

In this outstanding work of about 600 pages, the section on ophthalmology comprises 378. This part is devoted to a chronologic review of the administrative as well as the clinical policies and problems in the European, Mediterranean, South Pacific, and Pacific areas and the United States.

Basically, medical and surgical procedures paralleled those used in civilian ophthalmology when instruments, drugs, and trained personnel were available. Early in the war, especially in the Mediterranean and Pacific theatres, slit-lamps, large magnets and similar equipment, as well as some essential drugs were not available, and did not become so until 1945. Frequently the ingenuity of our ophthalmologists was illustrated by the construction of diagnostic instruments such as perimeters and campimeters, as well as by the substitution of necessary drugs.

The error factor in roentgenographic estimation of intraocular foreign bodies was between 5 and 10 per cent. Berman locators were available only in a very few eye centers. Casualties with intraocular foreign bodies were later given priorities in evacuation to special hospitals. Most retinal detachments were finally treated at the Valley Forge General Hospital by diathermy and the Guist operation.

Early evacuation of eye casualties to the rear echelons for definitive care was important. Ill advised debridement of injured eyes at first aid stations frequently necessitated extensive plastic surgery. The low incidence of sympathetic ophthalmia, however, justified the slight delay in skilled surgery by ophthalmologists.

Two million, two hundred and fifty thousand pairs of glasses were furnished by the army during the war. Poor refractions and delayed deliveries of lenses were not infrequent.

The interesting nonsurgical problems involved the prevention and treatment of ocular diseases. Nutritional amblyopia was not infrequent after release from Japanese prison camps. Thirty-six per cent of optic nerve and retinal edema occurred in scrub typhus patients. Occasionally corneal edema followed atabrine therapy.

Prior to World War II, ocular prostheses were made almost exclusively of glass. The use of acrylic artificial eyes was instituted by the Dental Division in 1944, when it was found that these appliances could be made quickly and in large numbers by easily trained technicians. Acrylic prostheses were superior to those of glass both cosmetically and practically.

Elaborate rehabilitation centers for blinded casualties were established at the Evergreen School in Baltimore, Valley Forge General Hospital in Pennsylvania, and the Old Farms Convalescent Hospital in Connecticut. A definite graded program, consisting of three periods, was provided newly blinded soldiers to help them through a very difficult period of adjustment. Self sufficiency was attained through special training, physical reconditioning, and emotional readjustment. Instruction in Braille, typing, music, and various forms of occupational therapy were available. Guide dogs were not usually a part of the rehabilitation program.

Aside from being very readable, well organized, and interesting, this volume provides an excellent résumé of the ophthalmic mistakes which were

most frequent during the first half of the war, as well as possible suggestions for their future prevention. It should be in every medical library and should be read by all ophthalmologists interested in the military service.

DRS. GUS C. AND CHAS. A. BAHN

Medical Department, United States Army, Surgery in World War II. Ophthalmology and Otolaryngology. Ophthalmology ed. by M. Elliott Randolph, M. D. Otolaryngology ed. by Norton Canfield, M. D. Washington, D. C., Government Printing Office, 1957, pp. 605. Price $5.00.

The section on otolaryngology in this volume deals with the management of the problems in this specialty encountered in service personnel during World War II. These problems were not limited to combat casualties. This is a specialty in which the problems of peacetime are also encountered, often in a greatly exaggerated form, in time of war.

The text covers the administrative aspects of otolaryngology in wartime, a general review of clinical policies, and certain special clinical conditions.

The administrative section chiefly concerns otolaryngology in the European Theater of Operations. It tells, in detail, the utilization of specialized personnel, who were always in short supply; the difficulties under which they worked, one of the chief being shortages of equipment; and the other problems of medical and surgical care in a combat zone. One of them was the management of maxillofacial injuries which, at least ideally, were handled by teams composed of an otolaryngologist, a maxillofacial surgeon, and a dental surgeon.

Both overseas and in the Continental United States, nasopharyngitis and tonsillitis were the otolaryngologic conditions most frequently encountered. In the Pacific, otitis externa was responsible for a serious loss of manpower hours and proved as difficult and perplexing to treat as it frequently is in civilian practice.

The subject of deafness occupies several chapters. Auditory impairment due to battle-incurred acoustic trauma was a distinct entity in Ground Forces in World War II. The discussion of the diagnosis of this type of deafness and of its management and the disposition of the casualties who presented it is extremely interesting, and the statistics and conclusions are both valuable.

Functional deafness was also an important cause of disability in World War II. Narcosynthesis proved a useful technique in the diagnosis and management of selected cases. One chapter is devoted to this new modality.

There is an excellent chapter on the Army program for the aural rehabilitation of deafened casualties. This program, which was carried out in special centers, represents the first use of integrated, trained personnel in the management of auditory impairment. The same pattern is now in use, and is proving remarkably effective, in speech and hearing centers all over the country.

The final chapter in this book is an informative discussion of facial paralysis of both traumatic and nontraumatic origin in military personnel by Dr. Frank D. Lathrop. The illustrations are excellent and the description of the technique clear and precise. The discussion covers probably the largest series of such injuries in the medical literature.

This extremely interesting chapter, like the rest of the text, can profitably be read by every otolaryngologist who is interested in the techniques of the specialty both in peace and in war.

HAROLD G. TABB, M. D.

Allergy in Childhood; by Jerome Glaser, Springfield, Illinois, Charles C Thomas, 1956, 529 p., price $12.50.

This is a comprehensive book on allergies and includes a paragraph on every kind of an allergic problem in children. It is complete in all details including the use and abuse of drugs. Many, many pearls can be picked up on all problems of diagnosis, treatment, and management of allergic diseases in childhood. The reviewer dislikes returning the book.

SUZANNE SCHAEFER, M. D.

PUBLICATIONS RECEIVED

Grune & Stratton, N. Y.: Action of Radiation on Tissues: An Introduction to Radiotherapy, by A. Lacassagne and G. Gricouroff, translated by Clarence C. Lushbaugh, M. D., and Gretchen R. Riese, M. S.; Diagnostic Laboratory Hematology, by George E. Cartwright, M. D. (2nd edit.)

Landsberger Medical Books, N. Y.: Atrial Arrhythmias, Digitalis and Potassium, by Bernard Lown, M. D., and Harold D. Levine, M. D.

Little, Brown & Co., Boston: Ciba Foundation Symposium on The Cerebrospinal Fluid; Production, Circulation and Absorption.

Philosophical Library, N. Y.: Medical Electrical Equipment, Robert E. Molloy, M. D., Advisory Editor.

W. B. Saunders Co., Phila.: Orr's Operations of General Surgery, by George A. Higgins, M. D., and Thomas G. Orr, Jr., M. D. (3rd edit.); Orthopedic Diseases, Physiology-Pathology-Radiology, by Ernest Aegerter, M. D., and John A. Kirkpatrick, Jr., M. D.; Modern Clinical Psychiatry, by Arthur P. Noyes, M. D., and Lawrence C. Kolb, M. D. (5th edit.)

The Williams & Wilkins Co., Balt.: Leptospirosis in Man and Animals, by J. M. Alston, M. D., and J. C. Broom, M. D.



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*A Symposium on the Pharmacologic Effects of Dartal on the Liver, Chicago, Searle Research Laboratories, Feb. 7, 1958.

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FINNERTY, F. A., Buchholz, J. H. and Tuckman, J.: J.A.M.A. 166:141, Jan. 11, 1958.

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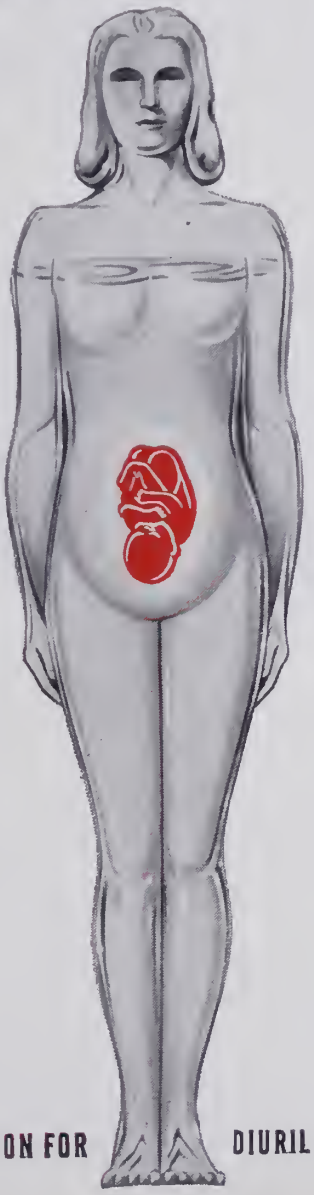
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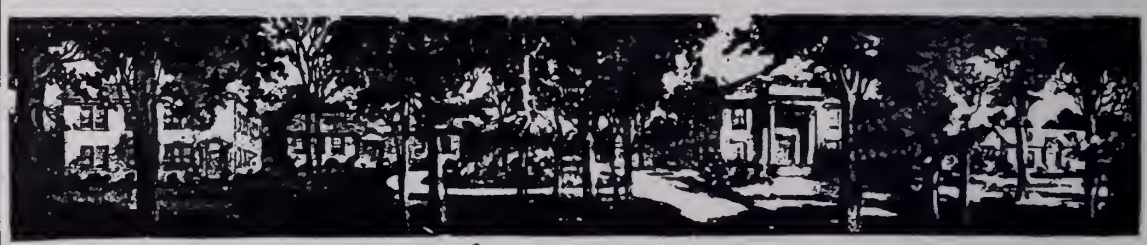
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1. Russek, H. I.: Postgrad. Med. *19*:562 (June) 1956.

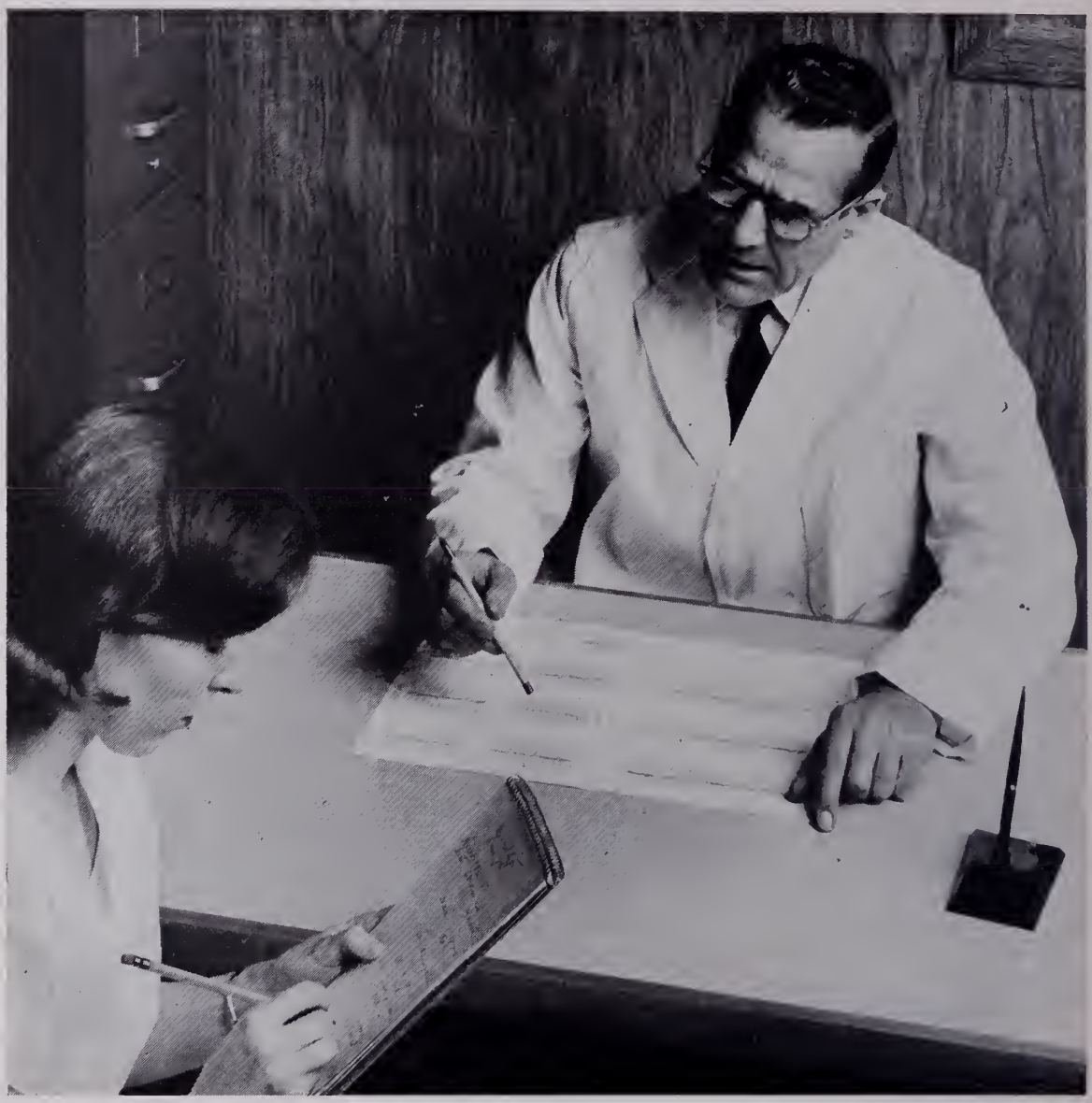
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PUBLISHED REFERENCES: 1. Carpenter, E. B.: Southern Medical Journal 51:627, 1958. 2. Forsyth, H. F.: J.A.M.A. 167:163, 1958. 3. Little, J. M., and Truitt, E. B., Jr.: J. Pharm. & Exper. Therap. 119:161, 1957. 4. Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: J. Am. Pharm. Assn., Sci. Ed. 46:374, 1957. 5. O'Doherty, D. S., and Shields, C. D.: J.A.M.A. 167:160, 1958. 6. Park, H. W.: J.A.M.A. 167:168, 1958. 7. Truitt, E. B., Jr., and Patterson, R. B., Proc. Soc. Exper. Bio. & Med. 93:422, 1957. 8. Truitt, E. B., Jr., Patterson, R. B., Morgan, A. M., and Little, J. M.: J. Pharm. & Exper. Therap. 119:180, 1957.

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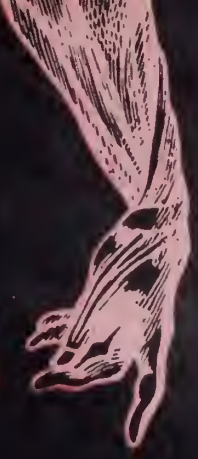
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Skeletal muscle spasm secondary to acute trauma	33	26	6	1	—
STUDY 2[2]		"pronounced"			
Herniated disc	39	25	13	—	1
Ligamentous strains	8	4	4	—	—
Torticollis	3	3	—	—	—
Whiplash injury	3	2	1	—	—
Contusions, fractures, and muscle soreness due to accidents	5	3	2	—	—
STUDY 3[5]		"excellent"			
Herniated disc	8	6	2	—	—
Acute fibromyositis	8	8	—	—	—
Torticollis	1	—	—	1	—
STUDY 4[6]		"significant"			
Pyramidal tract and acute myalgic disorders	30	27	—	2	1
TOTALS	138	104 (75.3%)	28 (20.3%)	4	2



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Riseman, J. E. F., Aitman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites in the Treatment of Angina Pectoris. Circulation (Jan.) 1958.

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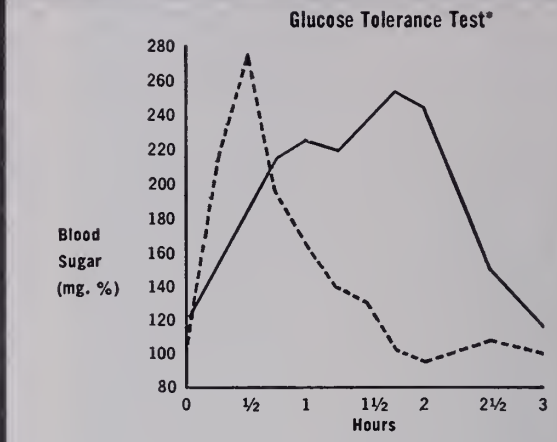
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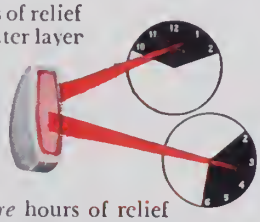
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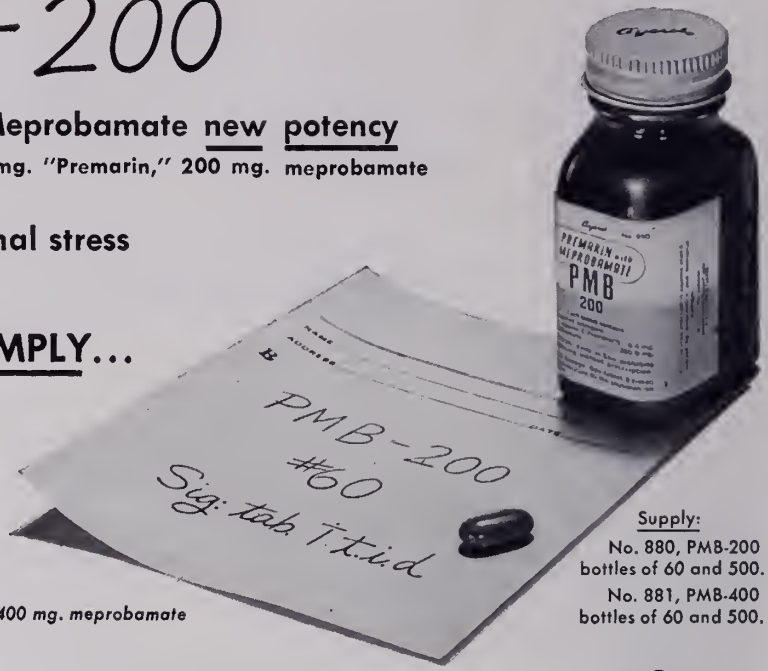
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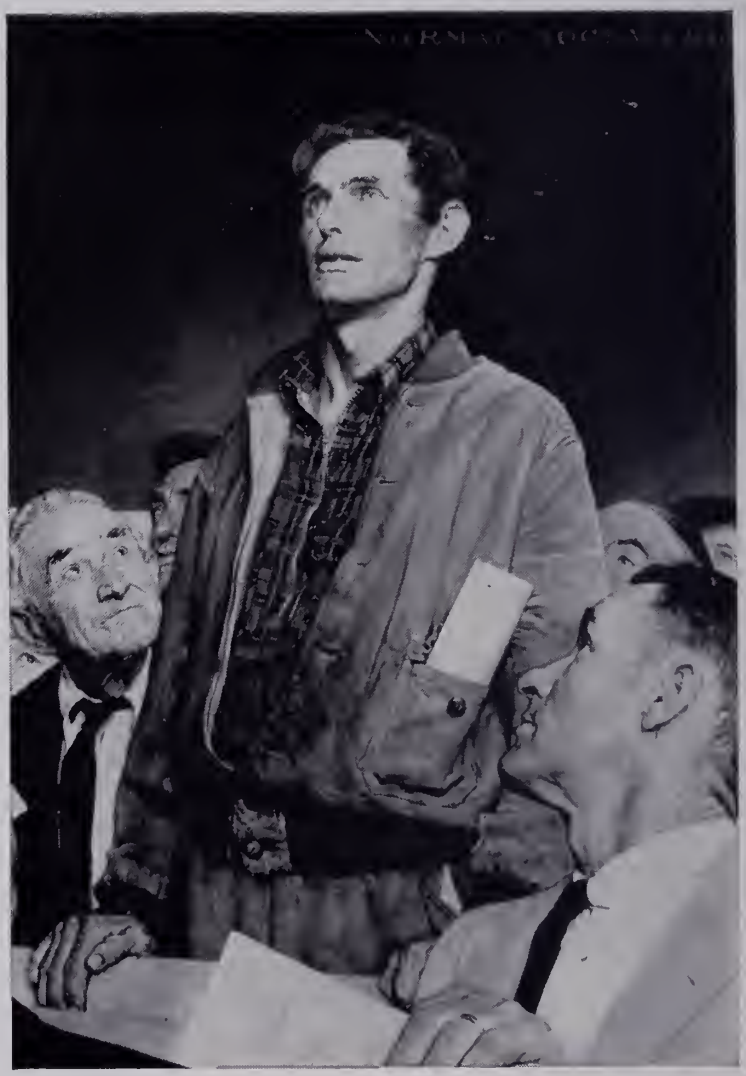
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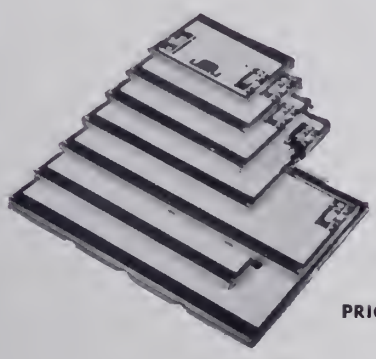


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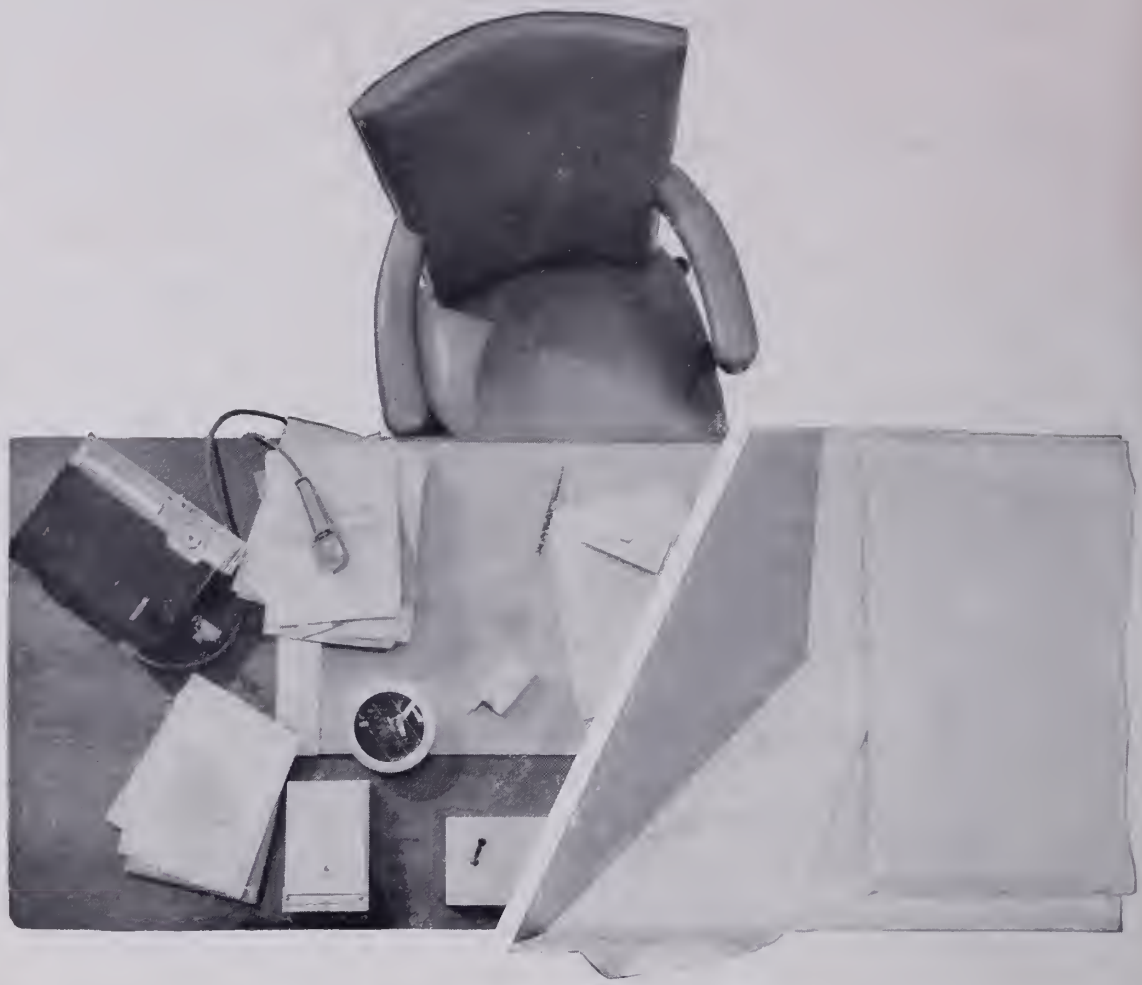
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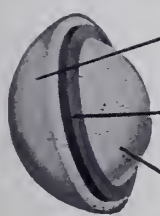
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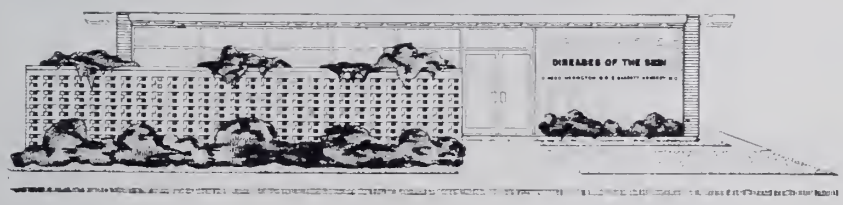
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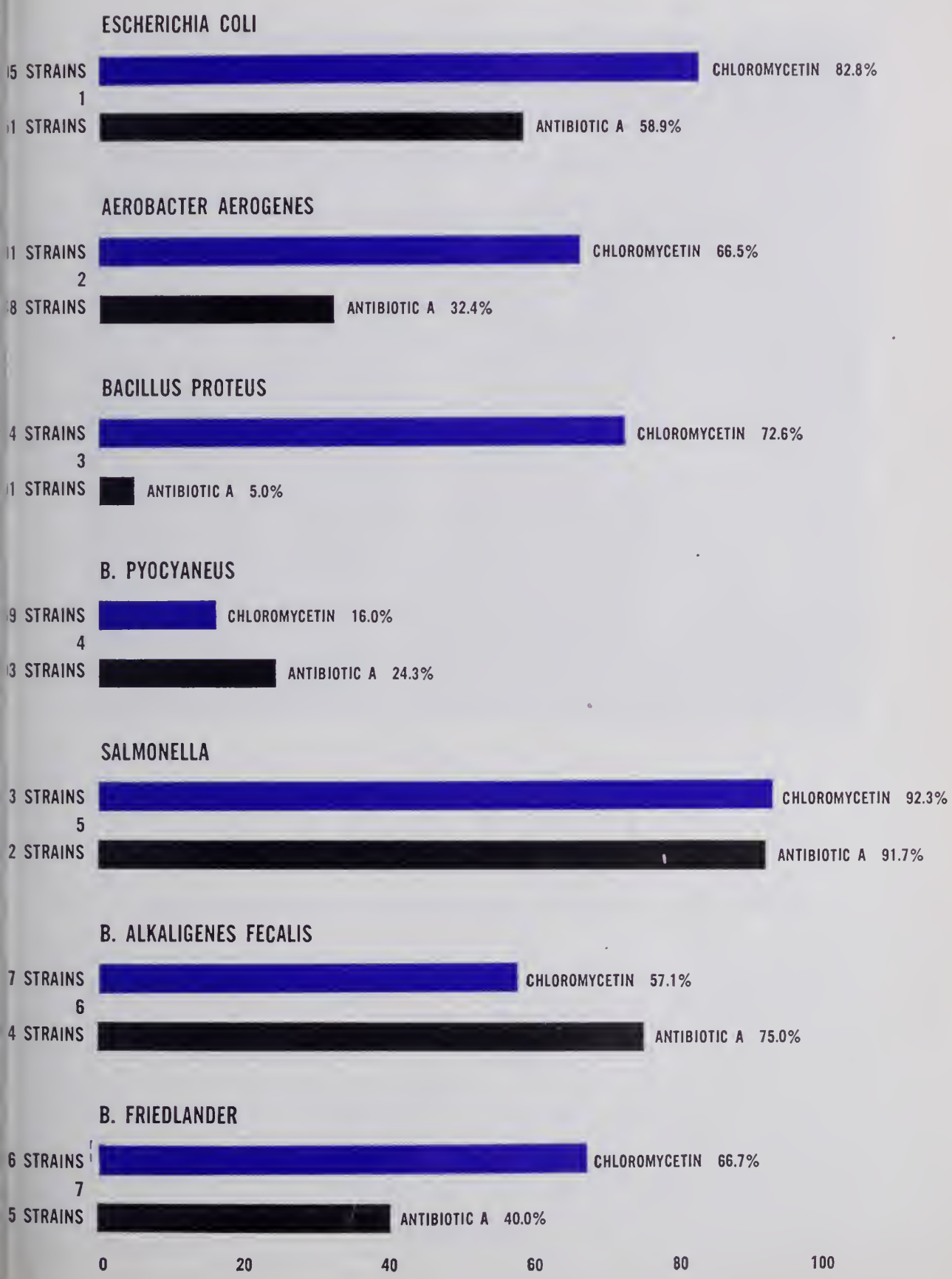
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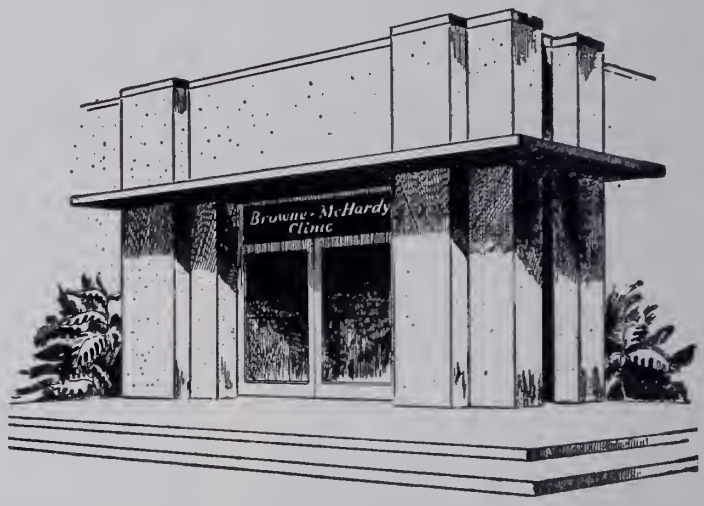
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1 Grieble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958
2. Editorial: *New England J. Med.* 258:48-49, 1958.

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SUDDEN CARDIAC DEATH *

SANFORD W. TUTHILL, M. D.†

Bogalusa

Unexpected sudden death due to heart disease occurs frequently. It is the purpose of this discussion to review the pathological physiology, the clinical causes and aspects of sudden cardiac death, and to stimulate further interest in those cases where immediate therapy can be life saving. The definition of sudden death as used here will imply death that occurs usually within a few minutes but no longer than twelve hours after incapacitating symptoms.

PATHOLOGICAL PHYSIOLOGY

The cause of cardiac death has been divided by Hellerstein [1] into two categories; namely, mechanism death and muscle death. Mechanism death is a disturbance in the coordinated beat of the heart, such as ventricular fibrillation or cardiac standstill. When acute myocardial infarction is found at autopsy, it is obvious that a disturbance in the coordinated beat has occurred. Had the coordinated beat not been destroyed, the heart would have continued beating. Muscle death, on the other hand, refers to those cases in which extensive degenerative changes develop in the myocardium leading to cardiomegaly and heart failure.

Abnormalities of rhythm following an acute coronary artery occlusion have been attributed to an irritable focus in the infarcted area from which arise ectopic stimuli resulting in disturbances in cardiac rhythm and frequently in fatal ventricular fibrillation. According to Brofman [2] et al., a difference in oxygenation of two adjacent areas of myocardium, associated with a difference in electrical potential across the transitional zone, acts as a "trigger" to destroy the coordinated mechanism of the heart, thereby inducing ventricular fibrillation. Milch [3] and his group working with dogs concluded that the animals were protected from ventricular fibrillation following coronary occlusion by thoracic sympathectomy and procaine injection of the stellate ganglia. The fatal stimulus from an extra corporeal source was thought to have been mediated predominantly over the cardiac sympathetic plexus which arises from the cervical and thoracic sympathetic ganglia. When the heart was ischemic and irritable, it seemed receptive to almost any type of somatic stimulus. Such a stimulus might initiate an abnormality of cardiac rhythm and frequently result in fatal ventricular arrhythmias.

CLINICAL CAUSES OF SUDDEN CARDIAC DEATH

Among natural causes of sudden death, heart disease is by far the most common. In a series described by Bedford,[4] cardiovascular causes accounted for 73 per cent of all deaths; in Sheldon's [5] 443 cases of sudden death, heart disease was responsible for 243 deaths. Hammann,[6] after reviewing several other authors' series of cases, concluded that diseases of the cardiovascular system, including arterial embolism, thrombosis, and hemorrhage as a cause of sudden

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* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, Shreveport, May 6, 1958.

death, accounted for 91 per cent of cases of which 65 per cent were due to disease of the coronary arteries, 21 per cent having occurred with valvular heart disease, 10 per cent with myocardial disease, and 3 per cent with cardiac hypertrophy. Rabson and Helpern [7] found that diseases of the heart and aorta were responsible for 45 per cent of cases of sudden death. There being sometimes an overlap, several causes for sudden unexpected death are present, e.g., a patient with angina may also have aortic stenosis and die from heart block. As is well known, many cardiac patients die suddenly and unexpectedly from pulmonary embolism which is the result of an embolus arising from one of the deep calf or plantar veins and the cause of death is not heart disease per se.

CORONARY ARTERY DISEASE

Sudden death is due most commonly to coronary artery disease which accounts for at least 60 to 80 per cent of all unexpected cardiac deaths.[8] Boemke [9] analysed 1,816 cases of sudden death in soldiers during World War II of which 1,217 sudden cardiac deaths were due to coronary sclerosis. Similarly, Monitz and Zamcheck [10] reviewed 1,000 cases of sudden deaths in apparently healthy young soldiers between the ages of 18 and 40 during the period 1942 to 1946. Of 350 cases of heart disease in this series, 300 deaths were due to coronary artery disease. Thus, if an adult apparently in perfect health suddenly falls dead, the chances are overwhelmingly in favor of coronary artery disease. In such a series of cases reported by Cairns,[11] a point of great interest was the number in which the main finding was diseased coronary arteries without thrombosis or occlusion. The arteries revealed coronary atherosclerosis with pronounced coronary narrowing, but no occlusion or infarction. French and Dock [12] observed coronary narrowing without infarction in many cases of sudden death in young soldiers. Levy and Bruenn [13] described a series of hospitalized patients with coronary heart disease who died suddenly, revealing at autopsy coronary atherosclerosis, but no fresh occlusion or other anatomic lesion to explain the immediate cause of death. They observed an 11.8 per cent incidence of sudden death in a group of patients with coronary sclerosis without thrombosis as compared with 33.3 per cent in a similar group with coronary thrombosis. Helpern and Rabson,[7] too, carefully analysed 2,030 consecutive cases of sudden and unexpected death verified at autopsy, coronary atherosclerosis accounting for 30.4 per cent of the entire series. Of 617 instances of coronary artery sclerosis, almost three-quarters (73.3 per cent) had no grossly demonstrable associated fresh thrombosis of the vessels. In most cases atheroma, with or without calcification, had produced significant diminution of luminal calibre, myocardial infarction having occurred in only 5 per cent.

These various series of reports seem to indicate that death from coronary thrombosis is less common than is clinically believed. As was expected, the most fatal years were between the ages of forty and fifty-four, most of the deaths occurring in white men. Negroes were certainly not immune to sudden death from coronary disease; however, of 46 cases of death attributable to obstruction of coronary ostia in syphilitic aortitis, 39 per cent were negroes.

Coronary embolism is relatively uncommon but obviously can produce sudden unexpected death. Nearly all reported instances have been due to detachment of part of a vegetation resulting from bacterial endocarditis.

CARDIAC RUPTURE

Rupture of the heart is one of the common causes of sudden death in the first few weeks after acute myocardial infarction. Martland [8] found that rupture of the heart comprised about 7 per cent of the 318 cases of coronary occlusion in his series, while Helpern and Rabson [7] reported an incidence of 10 per cent. Of clinical interest in Cairns'[11] series was the fact that of the 17 cases of coronary thrombosis with myocardial infarction, 14 died of a rupture of the infarct. In all of these cases, not only was the cardiac infarct unsuspected, but the deceased had not been considered to be ill at all prior to death. Jetter and White [14] found that, out of 22 cases in men-

tal institutions dying with a myocardial infarct, 16 had died with cardiac tamponade. None of these cases had given a complaint or symptom suggesting cardiac infarction, a fact which would suggest that the period of bed rest recommended for the diagnosed case of coronary thrombosis has much to commend it.

Rupture of the heart occurs most frequently in the first week, sometimes in the second week, and usually results from a tear through the infarcted area which is still necrotic and soft. Softening of the heart muscle is a major factor, yet Edmondson and Hoxie [15] found that patients who had persistent hypertension after infarction were three times more likely to develop cardiac rupture than those who had normal or hypotensive blood pressures. Cardiac rupture depends to a great extent also on the site and extent of the infarct and is favored by absence of fibrosis in the infarct.

Although cardiac infarction due to coronary artery disease is the most common cause of rupture of the heart, the latter may result rarely from bacterial endocarditis, myocardial abscess due to sepsis, dissecting aneurysm of the sinus of Valsalva, gummatous myocarditis, tuberculous perimyocarditis, echinococcus cyst and malignancy.

DISEASES OF THE AORTA

In cardiovascular syphilis, syphilitic aortitis is almost exclusively the lesion found. This condition can lead to sudden death, according to Oram,[16] in one of four ways; namely, by the syphilitic process occluding the coronary artery ostia, by rupture of a saccular aneurysm, by the development of aortic incompetence which interferes with filling of the coronary arteries, and by rupture of a focal dissecting aneurysm which usually ruptures into the pericardium.

Pick [17] described a case of dissecting aneurysm of the aorta which extended to the aortic root and resulted in hemorrhage into the atrial septum involving the area of the A-V node. The dissection eventually led to sudden death with rupture into the pericardium. According to Shennan,[18] approximately 10 per cent of all cases of dissecting aneurysm recover from the initial attack, as a result of the dissection rupturing back into the lumen of the aorta.

Oram and Holt [19] reviewed the various ways in which the coronary arteries can be involved in dissecting aneurysm, the more important of which include occlusion of the coronary ostia by the aneurysm, extension of the dissection along the coronary arteries, and compression of the coronary arteries from without by extravasated blood from the aneurysm.

Sudden death from rupture of the aorta which may be hypoplastic in coarctation of the aorta occurred in 19 per cent of Abbott's [20] cases. Sudden death may occur at the operating table from asystole when the aorta is clamped, or later from the tearing out of sutures from a hypoplastic aorta distal to the constriction, or from rupture along the suture line, owing to the nonhealing of the anastomosis because of superimposed infection.

Among 5000 necropsies performed by the Vienna Medico Legal Institute, according to Jolk,[21] only 4 instances of advanced stenosis of the aortic isthmus were encountered. Recently he reported such a case of sudden and unexpected death in a young athlete who had just finished weightlifting and wrestling. The stenosis, having caused a mechanical obstruction with considerable dilatation of the aorta above the isthmus, meant immediate death as a result of the rupture of the aorta. It was felt that the physiological rise in blood pressure accompanying such physical exercise very definitely exerted a deleterious influence.

DISEASES OF THE MYOCARDIUM

As is generally known, myocarditis may occur as a complication of any acute infectious process brought on by a wide variety of etiologic agents, such as bacteria, fungi, viruses, yeasts, Rickettsia, spirochetes, protozoa, and round worm infections. The clinical diagnosis of myocarditis is usually not difficult if the physician is aware of its existence and suspects its presence. Not infrequently, frank cardiac failure with edema will occur with its attendant clinical picture, various arrhythmias being en-

countered. An unexplained bradycardia or tachycardia out of all proportion to the associated disease suggests myocardial involvment. Dyspnea, cyanosis, and low blood pressure may be prominent; the electrocardiogram may be abnormal. The course then is generally rapid, and sudden death is not unusual. On the other hand, the illness may last for months; and recovery may take place after there has been serious involvment of the heart muscle.

Unexpected death occurs quite often in myocarditis. Gore and Saphir [22] reported 35 fatal cases of myocarditis of which there were 15 sudden and unexpected cardiac deaths. Boemke,[9] having analysed 1,816 cases of sudden death in soldiers during World War II, found 94 cases of sudden death due to myocarditis. Karni [23] studied 8 cases of isolated myocarditis, acute and chronic, which developed cardiac failure and died suddenly and unexpectedly. Bowden,[24] in a careful search for the cause of death in babies found dead in bed, noted five examples of acute myocarditis in a consecutive series of 50 babies. Among 60 children with myocarditis whom Saphir [25] studied, 9 died unexpectedly; 5 other children died suddenly with myocarditis while ill with laryngotracheobronchitis; and 3 patients with encephalomyocarditis died unexpectedly. Saphir,[25] too, cited one of the most fulminating instances of acute isolated myocarditis found in an apparently healthy male who collapsed and died while shoveling snow. Another recent study [25] of isolated myocarditis in children showed that 3 out of 15 died while being admitted to the hospital.

Sudden death in diphtheritic myocarditis is common and well known but occurs infrequently when compared with rheumatic carditis. Griffith and Huntington [26] could find only 3 such cases of sudden death among over 7000 cases of active rheumatic carditis. Gold [27] recently reported the case of a child's sudden death due to rheumatic myocarditis and cited percentages of deaths caused by it from 2.5 to 9.8 per cent. Likewise, Lisa [28] stated that among 117 patients who had myocarditis, 59 patients died suddenly. In this same study emboli in branches of the coronary arteries were found in 5 of 15 hearts. The source of these emboli, according to Lisa, was most likely mural thrombi in the left ventricle, seemingly the result of the adjacent myocardial inflammatory changes. It was felt that a heart already handicapped by acute myocarditis might well become suddenly insufficient if additional impairment was brought about by small coronary artery emboli. Saphir,[25] too, listed other explanations for unexpected death of myocarditis; namely, sudden circulatory collapse or shock secondary to myocardial failure. The inflammatory exudate may involve the fibers of the conduction system or the nodal tissues producing ventricular fibrillation. A massive exudate with severe degeneration, necrosis or compression of many heart muscle fibers may exist; however, the prognosis, according to Saphir, does not depend so much on the number of muscle fibers which are incapacitated by the inflammatory process, but rather on the state and amount of uninvolved myocardium.

OTHER CARDIAC CAUSES OF SUDDEN DEATH

Sudden death in calcific aortic stenosis, according to Oram,[16] may result from fatal syncope or from angina pectoris which is present in 20 per cent of patients with aortic stenosis. Angina in such cases appears to depend upon poor coronary filling secondary to a jet effect or to a low mean aortic pressure. McGinn and White, Margolis and coworkers, Bergeron et. al., Contralto and Levine report sudden deaths in 5 to 15 per cent of their cases.[8] Of 76 patients studied by Willins,[8] 8 died unexpectedly or suddenly, the cardiac syncope of aortic stenosis being due probably to ventricular fibrillation. De Veer [16] considered that in some cases sudden death could be explained by the locking of a rigid, but free, aortic cusp against fused cusps in diastole. Coronary occlusion is the most common cause of sudden death in aortic stenosis; yet, there are probably multiple causes.

According to Grulee [29] congenital anomalies of the heart and great vessels are found in approximately 4 per cent of autopsies in hospitals caring for infants and children as compared to an incidence of

about 1 per cent in general hospitals. Grulee further pointed out that unexpected death in the neonatal period can occur from pulmonary artery atresia, complete transposition of the great vessels, persistence of primitive aortic arches as a vascular ring, anomalies of the coronary circulation, and coarctation of the aorta. Farber,[30] also, considered congenital anomalies of the cardiovascular system as one of the principle causes of sudden death in early life.

Sudden death has been observed in Ebstein's disease and idiopathic cardiac hypertrophy, too, according to Rosenbaum and Stiles,[31] who reported two cases of cyanotic congenital heart disease in whom an unusual mechanism occurred, thereby causing sudden death. In one patient the major lesions were pulmonary atresia and tricuspid stenosis, and in the other the chief anomalies were aortic and mitral stenosis. In both patients thrombi developed above the anomalous semilunar valves and ultimately became large enough to obstruct vital circulatory pathways and produce sudden unexpected death. These authors pointed out that, as surgical procedures are developed for alleviation of congenital anomalies, it is possible that care will have to be taken to avoid creation of cul de sacs in which thrombi form and lead later to serious consequences.

Cardiac catheterization fortunately is rarely a cause of sudden death; however, Goodwin [32] has described one case in which trauma to the endocardium of the outflow tract of the right ventricle resulted in unexpected death.

Sudden death may occur after cardiac trauma with or without preceding symptoms of angina pectoris. In an experiment conducted with dogs, it was found that a heavy blow may bruise the heart and cause ventricular fibrillation or even cardic rupture. Bright and Beck [35] feel that man probably reacts in a similar way.

The course and prognosis of tumors of the heart vary with the nature of the tumor, but sudden death is not uncommon even with benign tumors, such as myxoma or rhabdomyoma.

Kulka [33] pointed out that sarcoidosis of the heart caused sudden death; Stevens [34] recently reported a case with extensive myocardial sarcoidosis who died suddenly.

Another cause of unexpected sudden cardiac death is a ball valve thrombus which may completely occlude the mitral orifice.

THERAPEUTIC DRUGS

Of drugs used for treatment which can cause sudden death, digitalis, adrenalin, quinidine, and intravenous diuretics are undoubtedly the best examples. If given in sufficiently large doses in man, digitalis can induce any arrhythmia, including ventricular fibrillation. Likewise, adrenalin in large doses, especially if given intravenously by accident, will cause sudden death. In such cases almost any arrhythmia except heart block may be induced. Quinidine therapy also brings about unexpected death. In a review of 611 previously uncollected cases between 1947 and 1954, Thompson [36] noted that 20 deaths occurred during therapy and were variously interpreted by several authors. Clearly, in certain cases, death could be attributed to other causes, making the adjusted death rate 2.1 per cent which was regarded as the maximal risk of sudden death from quinidine in this series. It was apparent that the risk of sudden death from quinidine is real, and in some cases not susceptible to pathologic examination. No final conclusions regarding the cause of sudden death could be made because of the limitations of the reported autopsy material. However, the data favored some reason other than embolism. Severe organic heart disease, congestive heart failure, and associated serious illnesses increased the possibility of a fatal reaction. Thompson [36] stated that idiosyncrasies to the drug, the occurrence of ventricular tachycardia and fibrillation particularly associated with intravenous administration of quinidine and conduction defects, such as complete bundle branch block or intraventricular block, are known mechanisms of producing sudden cardiac death. Unappreciated toxic effects of the drug, especially on the central nervous system, also appear to play a role in the production of sudden death. It was suggested by Thompson [36] that these effects might be avoided by a more judicious se-

lection of patients for therapy and meticulous supervision of all patients receiving large doses of the drug.

CLINICAL ASPECTS AND TREATMENT

Whatever the cause of loss of consciousness, the clinical picture will be similar. The attack occurs at any time with dramatic suddeness and without warning. The patient loses consciousness immediately and at first is white, flaccid, pulseless and has no audible heart sounds although breathing may continue. The pupils are dilated. After approximately fifteen seconds, anoxic twitching begins and may proceed to a generalized convulsion. If the patient does not recover within three minutes, death usually results; but if recovery does follow, return to consciousness is abrupt and complete, and the patient's color changes from white to bright red because of hyperoxygenated blood being suddenly pumped into a dilated vascular system.

It seems paradoxical to discuss the treatment of sudden death due to heart disease, yet often the immediate cause of death is not irreversible, if treatment is instituted promptly.

Cardiac arrest is defined as the sudden stoppage of effective heart action due to cardiac standstill or to ventricular fibrillation. Stephenson [37] and associates, who collected over 1,200 such cases reported 90 per cent occuring as cardiac standstill and 10 per cent as ventricular fibrillation. Cardiac arrest may occur during any operation with any type of anesthesia; however, it does not occur exclusively in the operating room. Beck [38] described the case of a physician who "died" from an acute myocardial infarction while he was leaving the hospital. Cardiac massage was begun within three minutes after thoracotomy. Ventricular fibrillation was observed and a normal sinus rhythm was restored to the heart with an electric shock. The patient recovered. A similar case was reported by Regan [39] et al. Celio,[40] too, successfully resuscitated a patient with an acute anteroseptal myocardial infarction who suddenly developed cardiac arrest. Recently, Hannon [41] reported a case in which a hospital employee stricken in the hospital corridor was resuscitated from a cardiac arrest secondary to myocardial infarction.

Treatment of cardiac arrest requires prompt recognition, previously organized preparation with a predetermined plan of action, and readily available equipment. A so-called cardiac resuscitation kit which includes a defibrillator should be available at critical locations in every hospital.

Because of the absence of bleeding and the permissibility in such cases of ignoring the danger of infection, cardiac massage can be performed by doctors with no surgical training. This procedure should be studied and adopted by internists and general practitioners as well as by surgeons. Once cardiac massage has been instituted, the anesthetist can be summoned to supervise controlled respiration; the surgeon, to attend the wound. If there is to be successful resuscitation, it must be undertaken immediately, as delay incurred in sending for a surgeon and an anesthetist involves the danger of irreparable cerebral damage.

Another means of treating cardiac standstill is by the use of the external electric pacemaker. Zoll [42] and associates successfully resuscitated 27 patients from Stokes Adams attacks with the electric pacemaker. Rosenfeld and Segall [43] reported 3 cases and Kaye,[44] 1 patient with Stokes Adams disease, all of whom were revived with the external electric pacemaker. The external pacemaker was repeatedly effective in resuscitating three patients with ventricular standstill due to reflex vagal stimulation.[42] The precipitation of such episodes by carotid sinus pressure and their disappearance after the administration of atropine established their reflex vagal origin. External electric stimulation terminated ventricular standstill and restored an effective circulation in these patients more than one hundred times. Promptly resuscitated with the pacemaker by Zoll and associates were 2 patients who had ventricular standstill produced by digitalis intoxication. Besides, 2 patients with ventricular standstill after intravenous administration of procainamide in the treatment of ventricular extrasystoles and tachycardia were also resus-

citated immediately by the external pacemaker.

It may well be concluded that the external electric pacemaker is a convenient and practical means of reanimating the arrested heart. The ultimate prognosis depends on the underlying etiologic factors disturbing the conducting mechanism.

SUMMARY

1. Sudden unexpected death due to heart disease occurs frequently.

2. The clinical causes and treatment of sudden cardiac death have been discussed.

3. Every hospital should have the necessary equipment available for the treatment of cardiac arrest.

4. Cardiac arrest does not occur exclusively in the operating room, but occasionally follows coronary occlusion, Stokes Adams attacks, reflex vagal stimulation and drug intoxication.

5. Some cardiac cases can be resuscitated, since death is often due to a disturbance of rhythm rather than myocardial failure.

6. Internists and general practitioners should be prepared to resuscitate with or without the external electric pacemaker the instant cardiac arrest occurs.

7. An active interest in therapy for cardiac arrest will salvage some patients from sudden cardiac death.

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MYOCARDIAL INFARCTION—EMERGENCY TREATMENT *

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From continual improvement in diagnostic methods, we have become more aware of the wide variations possible in the clinical picture of acute myocardial infarction; it follows that there can be no set routine emergency treatment covering all cases with this condition. Differences of opinion exist in the management of certain phases of myocardial infarction, yet the basic therapeutic principles have undergone little or no change in the past several years. The purpose of this paper is to discuss these therapeutic principles, and to state and discuss my personal opinion regarding the management of the emergency phase of this condition. This outline is based, primarily on my clinical impressions gained through personal experience in the field of cardiology. Though the exact limits of the emergency phase of acute myocardial infarction may defy definition, I will consider the first seventy-two hour period as the emergency phase. This will allow us a somewhat general agreement of terms.

In management of acute myocardial infarction, the physician must evaluate each patient individually. This evaluation must be made in respect to the presenting clinical signs and symptoms as well as the personality of the patient and his reaction to the disturbance. Particularly in the emergency phase, the treatment should be directed at the patient and not the magnitude of the QRST changes on the electrocardiogram. Treat the patient—not his electrocardiogram.

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HOSPITALIZATION

It is my opinion that all patients with acute or impending infarction should, if at all possible, be hospitalized regardless of the severity of the presenting symptoms or the electrocardiographic changes. Routine hospitalization is indicated by the constant uncertainty of these cases, especially in the first few days. It is true that many patients with so-called "mild attacks" have been and are still being successfully treated at home, but this does not per se support an argument for home treatment. All too often, I have viewed "mild" cases, being treated at home, to exhibit a recurrence of chest pain, go into shock, and die before any emergency treatment can be initiated. It is evident that hospitalization makes certain necessary treatments more readily available; that is, use of opiates, vasopressor drugs and oxygen therapy. In addition, hospitalization affords the physician the opportunity to observe his patient more carefully so as to detect and treat impending complications and disturbances; and to more accurately evaluate the patient's progress in order to make recommendations regarding future activity and his ultimate return to work.

When and how a patient should be moved to the hospital is a frequent problem. Mild cases in which the presenting signs and symptoms have subsided may be safely transferred by automobile. Most other cases should be transported by ambulance. Severe cases in which intractable pain is exhibited should not be moved until pain has subsided or disappeared. Patients presenting the picture of shock should receive vasopressor drugs before transfer to the hospital.

CONTROL OF PAIN AND ANXIETY

The control of pain and anxiety is the

first and most common problem with which the physician is confronted in a case of acute myocardial infarction. The treatment of these symptoms and choice of drug should be so designed as to give the patient maximum relief without producing serious or unpleasant side effects.

In certain instances in which pain has subsided, sedation may be all that is necessary. For patients experiencing mild pain, dolophine®, demerol®, or codeine will usually be adequate. Nitroglycerine does not, as a rule, relieve the pain of acute myocardial infarction; however, it may afford temporary relief in certain mild cases. This drug should be used cautiously in patients having severe pain with impending shock, for it frequently causes a further drop in blood pressure, thereby decreasing, instead of increasing, the coronary blood flow.

Morphine, although it frequently produces undesirable side effects, in my experience, is still the drug of choice not only because of its pain relieving powers, but also because of the euphoria and sedation it produces. The average case requires from 1/6 to 1/4 grain hypodermically for relief. If a more rapid effect is desired, the drug should be given intramuscularly and the injection area massaged. For intractable pain this dose may be repeated in thirty minutes to an hour. As much as 1 grain may be required in severe cases. Occasionally, it may be necessary to give from ¼ to ½ grain of morphine intravenously for relief of extremely intense pain. For this route of administration, the drug should be diluted with 10 cc. of sterile water or saline and given slowly until the pain subsides. Dilaudid®, 1/32 grain, is as effective an analgesic as morphine, and it is preferred by some physicians on the basis that it produces less nausea and vomiting. Demerol®, 75 to 100 mg., hypodermically, may suffice to control pain. Although not possessing the pain-relieving qualities of morphine, demerol® does not cause respiratory depression to the degree of morphine and the other opiates. I very seldom use it initially, as I have found that its relaxing effect on smooth muscle not infrequently causes a drop in blood pressure, especially in patients with infarction accompanied by signs of impending shock. This induced state of shock, precipitated by demerol®, is more likely to occur when this drug is used in combination with aminophyllin, another potent vasodilator. Dolophine®, 5 to 10 mg., is another effective analgesic and very seldom causes nausea and vomiting. I have found it very useful, in combination with phenergan®, for patients that cannot tolerate morphine or dilaudid®. Oxygen, aminophyllin, and papaverine have been recommended for intractable pain, but I have not been impressed with their efficacy in this regard.

Because opiates have a depressing effect on the respiratory center and may induce Cheyne-Stokes respiration, large doses of these drugs should be used cautiously. Not infrequently, the average dose of morphine will produce marked respiratory depression, particularly in a debilitated and elderly patient with cerebral arteriosclerosis. When excessive narcosis occurs, or the respiratory rate falls below 12 per minute due to opiates, Nalline®, 10 mg., should be given intravenously and repeated in ten to fifteen minutes if necessary. If an increase in respiratory rate is not evident in two to three minutes, an additional injection of 10 mg. may be given. Aminophyllin, 10 cc. (3 and ¾ gr.) intravenously, is the drug of choice for Cheyne-Stokes respiration. Occasionally, atelectasis and/or pneumonia will develop following the use of large doses of opiates during the initial period of treatment. This is due to depression of the cough reflex and retention of secretions which are normally expectorated. To prevent such a complication, the patient should be encouraged to take deep breaths frequently, and to cough if there are any indications of secretions present in the bronchial tree.

SEDATIVES

Sedatives, as a rule, are not necessary early in the treatment of myocardial infarction when morphine or other opiates are used. Patients having transient pain due to impending infarction should be given a sufficient amount of sedation to produce mild drowsiness. For this purpose, phenobarbital, in ½ gr. doses t.i.d., is still the

drug of choice. I have not found that meprobamate or the other tranquilizers offers the patient any more advantages than the barbiturates. One should remain aware, of course, of the fact that in some patients the barbiturates will induce excitement and restlessness instead of the desired depression. Chloral hydrate, 7-½ grains, is an effective sedative and may be substituted when patients are sensitive to barbiturates. In my experience, doriden®, 0.5 gm., has proved to be an ideal drug for nocturnal sedation.

BED REST

Complete bed rest has been traditionally regarded as the most effective means of affording the injured heart maximal rest. Until a few years ago, patients with acute myocardial infarction were placed in the recumbent position and not allowed to move an extremity or turn around in bed unassisted. The trend lately has been towards a liberalization of the rigid restrictions of complete bed rest, allowing the patient to move more freely in bed. Physiological data presented by many recent writers show that the cardiac output is significantly less in the sitting position than in the recumbent position. In the past year I have encouraged my patients from the very beginning, to spend as much time as possible in the sitting and semirecumbent positions. I have found that these patients often get along better, recuperate physically and psychologically much faster, and develop fewer bowel and bladder complications. For the first few hours when the patient is having acute symptoms, the position of the bed should be adjusted to his comfort.

Those cases not complicated by signs of peripheral vascular collapse are placed in the sitting position for meals and are allowed to feed themselves if this slight exertion does not initiate chest pain. They are encouraged to remain in the sitting position until fatigue develops, and then the head of the bed is lowered to the semirecumbent position. Patients that have difficulty using the bed pan are allowed to use the bedside commode. Cases dominated by severe and prolonged pain are treated in the same manner except that they are not allowed to feed themselves.

When the picture is complicated by shock, the patient is placed in the recumbent position until the blood pressure is stable and all signs of peripheral collapse have disappeared. In the presence of left-sided heart failure, the patients are usually more comfortable in the sitting position. All patients are encouraged to take deep breathing exercises, dorsiflex both feet. and contract leg muscles frequently.

ANTICOAGULANTS

Though the use of anticoagulants in the treatment of acute myocardial infarction is now generally accepted, there still exist some differences of opinion as to which cases should receive these drugs. Recent writers on the subject strongly favor the use of anticoagulants for all cases of myocardial infarction regardless of the severity of the attack or the presence, or absence, of other specific indications for their use. With few exceptions, most of the currently reported series show that there is a statistically significant decrease in the mortality rate as well as a decrease of the incidence of thromboembolic complications in those patients treated with anticoagulant drugs.

There are some authors who still maintain that anticoagulants are neither necessary nor desirable in every case of acute myocardial infarction. These authors divide their patients into two general groups of "good-risk" patients and "poor-risk" patients. The "good-risk" patients, those having a first attack without serious prognostic signs, are not given anticoagulants on the basis that the mortality rate is low and the use of these drugs would not favorably influence the outcome of these cases. The popular argument against this premise is that one cannot accurately predict during the first few hours or days, which case will be mild or severe; and since it is presumed that thromboembolic complications are more likely to occur in the first few days after the acute episode, the prompt institution of anticoagulant therapy is thought desirable.

It has been my practice in recent months,

to place all patients on anticoagulants immediately after the onset of the acute symptoms, whenever adequate and competent facilities are available for continued determination of coagulation and prothrombin times. Patients who, in my estimation, have a "mild" attack and have not known predisposing thromboembolic factors are usually maintained on anticoagulants until fully ambulatory, i.e., about six weeks. "Severe" cases are now being maintained on anticoagulants for several months or more, depending on the presence of factors known to favor the development of thrombi. Those patients who develop symptoms of coronary insufficiency or impending infarction after the first attack are usually maintained on therapy for several months after symptoms have subsided. Though the previous statments are not concerned solely with the emergency treatment of myocardial infarction, I have included them here for I feel that any current discussion of the subject demands at least this degree of comment on anticoagulants.

Initially, the combination of heparin and dicumarol or other cumarin derivates should be used. Several methods of administering heparin are available, but I have found that giving 50 mg. doses subcutaneously every six hours for thirty-six to forty-eight hours to be the most practical regimen. At the same time heparin is started, the patient is given a 300 mg. dose of dicumarol. A prothrombin determination is performed on admission and repeated daily while the patient is in the hospital. Subsequent dicumarol dosages are then adjusted according to the prothrombin time. For clinical purposes, two to two and one-half times the control prothrombin time is considered the accepted therapeutic range. Heparin is discontinued when the prolongation of the prothrombin time is within these limits. Even though the development of a hemopericardium is not a common complication of anticoagulant therapy, it has been my custom to discontinue these drugs temporarily on all cases that evolve a significant pericardial friction rub.

Anticoagulants are contraindicated in the presence of prolonged prothrombin time due to Vitamin K deficiency or severe liver disease, renal insufficiency, acute gastric or duodenal ulcer, blood dyscrasias with impairment of normal mechanism of hemostasis, and/or recent surgical operation or open wounds.

OXYGEN

Oxygen has been widely used in the emergency treatment of acute myocardial infarction; however, doubt exists as to its true need in all such cases. Studies show that the arterial oxygen saturation is essentially normal in the uncomplicated cases, yet those patients with evidence of shock and/or pulmonary edema may exhibit a significant degree of anoxia. I administer oxygen to all such complicated cases as well as to those patients with intractable pain.

Oxygen may be administered by nasal catheter, mask, or by tent. The recommended method would depend on the severity of the anoxia and the comfort and wishes of the patient. Recently, the administration of oxygen by intermittent positive pressure has become more popular in the treatment of pulmonary edema.

SHOCK

Shock is a serious and often fatal complication of acute myocardial infarction and, therefore, should be watched for and treated immediately. The resulting mortality rate is high and is directly proportional to the severity and duration of the shock state. Since the advent of effective vasopressor drugs, the mortality rate is significantly reduced. Clinical signs of shock almost always develop soon after the onset of acute infarction symptoms and persist from a few hours to one or two days. Transitory fall of blood pressure is a common finding in myocardial infarction of moderate or mild degree and does not require specific treatment. Whenever the systolic pressure falls below 90 mm. of Hg. in a normotensive patient and below 100 mm. of Hg. in a hypertensive patient, very careful observation is imperative. Quite frequently, patients in mild shock will improve with only bed rest, oxygen, and alleviation of pain and anxiety with opiates. Those cases that do not respond to the usual treatment for acute myocardial infarction

should be given one of the vasopressor drugs.

My practice is to administer oxygen to all patients in shock. Those presenting the picture of "mild" shock are given 15 to 30 mg. of wyamine® (mephentermine). intravenously. Further drug therapy is withheld if the systolic pressure is maintained at or above 100 mm. of Hg. When wyamine® is ineffective in relieving shock, an intravenous infusion of 5 per cent dextrose in distilled water which contains from 4 to 12 mg. of levophed® (norepinephrine) is instituted immediately. Patients with acute infarction initially exhibiting profound shock should be instantly started on a levophed® drip. The infusion flow is regulated so as to maintain a systolic pressure of 100 to 110 mm. of Hg; usually 20 to 30 drops per minute is sufficient. If the desired pressor effect is not obtained, more levophed® is added to the infusion bottle—this being preferred to an increase of the infusion drip rate. When the blood pressure has been maintained for several hours, the levophed® is gradually reduced and eventually stopped if the blood pressure level is adequate and stable. During administration of vasopressor drugs, the constant attendance of physician or nurse is mandatory for the continual check on blood pressure effects. Those patients who indicate little ability to sustain their own pressure after a reasonable period of time (six to eight hours), are given corticotropin hormone (ACTH) either intravenously or intramuscularly. In many instances, the response is dramatic and the levophed® may be discontinued within a few hours.

CONGESTIVE HEART FAILURE

Some cases of acute myocardial infarction will be ushered in with intense dyspnea, anxiety, and other signs of pulmonary edema. Because symptoms usually appear suddenly and require immediate attention, treatment, in most cases, must be initiated in the home. Morphine or other opiates will frequently afford rapid and dramatic symptomatic relief. In the presence of bronchospasm, aminophyllin gr. 3-¾, is often very effective. If improvement does not occur rapidly with these measures, the patient should be digitalized with a fast acting digitalis preparation such as, ouabain, lanatoside C, or digoxin. At the same time 2 cc. of a mercurial diuretic should be given intramuscularly. As soon as possible, oxygen should be administered in high concentration or under positive pressure. If there are signs of rightsided heart failure, as evidenced by distended neck veins, the removal of 350 cc. to 500 cc. of blood may be lifesaving.

ARRHYTHMIAS

Almost any of the cardiac arrhythmias may develop during the early days following acute infarction. Premature ventricular contractions are the most common but rarely require treatment. It is my custom to prescribe quinidine or pronestyl® only when the contractions are disturbing to the patients or recur frequently. Quinidine in doses of 3 to 6 grains or pronestyl® in doses of 250 to 500 mg., three to four times daily, is usually adequate to control this abnormality. Because these drugs not infrequently cause a significant drop in blood pressure, they should be used cautiously in the first few days following infarction. Auricular fibrillation is usually a transient disturbance which often subsides spontaneously with a little sedation. When it persists and the ventricular rate is rapid, immediate digitalization to control the apical rate between 70 to 80 beats per minute is indicated. Quinidine is used with digitalis only when frequent ventricular premature beats are present before digitalization, or develop shortly thereafter. Auricular flutter is treated in the same manner. Ventricular tachycardia, as a complication of acute infarction, indicates an extremely grave situation and must be treated immediately. Quinidine and pronestyl® are the drugs of choice and, in my opinion, are equally effective for this particular arrhythmia. Some cases may be managed with oral medication, but because of the seriousness of the condition, the parenteral route of administration should be used in most instances. Quinidine, when given orally, is usually started at a dose of 3 grains every two hours. If the arrythmia does not respond, the dosage is increased to 6 grains

every two to three hours. When the parenteral route is indicated, quinidine gluconate is given in 0.6 to 0.8 gm. doses in 250 cc. of 5 per cent dextrose administered over a period of one hour under electrocardiographic control. Pronestyl®, in doses of 200 to 1000 mg., may be given intravenously, at a rate not to exceed 100 mg. per minute. The blood pressure should be recorded frequently and if a significant hypotension develops, wyamine® or levophed® should be administered immediately. Supraventricular tachycardia may be terminated by sedation and/or carotid sinus stimulation, but quite often rapid digitalization is necessary.

REASSURANCE

Though reassuring the patient who has suffered a myocardial infarction is extremely important, it is not necessarily easy; for most people today are aware of the seriousness and uncertainties of the condition and generally familiar with the effect it has on one's future. It is comforting to the patient to know what to expect; hence from my experience, a careful discussion, in simple language, of the condition and symptoms is recommended. Such a discussion, in which it is pointed out that the majority of cases recover completely and resume normal activities, I have found, is a most effective method of controlling the profound psychological disturbances that almost invariably develop. Explaining what has gone wrong and what you hope to accomplish with your therapy helps the patient to feel that he is in competent hands and that everything possible for his comfort and recovery is being done. I also find it helpful to explain to the patient that certain symptoms, like pain, do not in themselves indicate a bad prognosis. When particular physical findings are normal, I feel that the patient benefits from being informed. If his pulse, blood pressure, and/or heart sounds are normal, I like to tell the patient so; and that he is doing fine. The beneficial results of the physician's display of confidence in himself and his knowledge have been often observed. On many occasions, the cardiologist is called in consultation not because the case is a problem in diagnosis or management but purely for the beneficial psychological effect.

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DRUG THERAPY OF CARDIAC ARRHYTHMIA *

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Some arrhythmias, such as sinus arrythmias, sinus bradycardia, and some cases of complete heart block, require no treatment. In others, some aspects of treatment are still controversial. I will try to present the latest advances in treatment and the type of treatment most universally accepted.

PREMATURE SYSTOLES

Actually they are of little clinical significance in most cases; however, due to their common occurrence and the danger of overemphasizing their importance to

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the patient, I will mention them. Premature beats are due to abnormal stimuli arising in some area of the heart outside the normal pacemaker and originating a beat before the regular beat.

If the premature beats are very frequent or disturb the patient, treatment is indicated. Any possible causative agent such as tobacco, alcohol, fatigue, or disease should be eliminated if possible. If there is no associated heart disease, mild sedation is effective. Quinidine, in 0.2 grams to 0.4 grams, four times a day will usually suppress the prematures. If they are due to digitalis intoxication, potassium salts will control them. When there is evidence of congestive failure, digitalis, by improving the heart function may control the prematures.

SUPRAVENTRICULAR TACHYCARDIAS

Paroxysmal supraventricular tachycardia is a term used to indicate auricular or atrioventricular nodal tachycardia. The treatment of both is similar and they are frequently difficult or impossible to differentiate. Paroxysmal auricular tachycardia is by far the more common of the two. Usually this fast rhythm, especially when auricular in origin, is very regular and has a sudden onset and cessation. Its usual rate is between 160 and 220. These arrhythmias are often imposed on otherwise normal hearts.

In the treatment of these tachycardias, an attempt should first be made to eliminate any possible causal agents such as tobacco, fatigue, emotional upset, infection, digestive disturbance, thyrotoxicosis, and digitalis intoxication.

Stimulation of the vagus slows the sinoauricular node rate, slows conduction through the atrioventricular node and depresses any ectopic focus in the auricles. The simplest and quickest treatment is vagus stimulations by carotid sinus pressure, eyeball pressure, Valsalva maneuver, or induction of vomiting.

The carotid sinus is located at the bifurcation of the carotid artery at the angle of the jaw. Pressure should be applied firmly toward the vertebral column for ten to fifteen seconds in a rotary manner at the bifurcation of the carotid. Pressure applied proximal to the bifurcation will result in lower intraluminal pressure in the sinus and actually cause vagal inhibition. This mistake is a frequent cause for failure of this maneuver. The right side is more sensitive usually and should be pressed first. If either carotid has decreased pulsation, pressure should be applied for a shorter period of time. Massage of both carotids at the same time markedly reduces cerebral blood flow and should not be tried except in young people under special circumstances.

On eyeball pressure increased stimulation of the vagus is transmitted through the ophthalmic branch of the trigeminal nerve to the vagal nuclei. Pressure should be applied on both eyes to the point of pain for twenty to thirty seconds. The danger of retinal detachment during this procedure has been mentioned but I think it is remote.

In the Valsalva maneuver, the patient maintains forced expiration with the glottis closed for fifteen to twenty seconds. The postexpiration rise in blood pressure will increase pressure in the carotid sinus and thus cause vagal stimulation.

Vomiting can be caused by mechanical irritation of the pharynx or by ipecac in rather large doses, four to eight cc. initially. This dose can be repeated in forty-five minutes if normal sinus rhythm has not returned. Apomorphine is not as safe or effective as the above two means.

Sedatives and narcotics, especially morphine, relieve anxiety and emotional tension and, when no heart disease is present, will frequently relieve the tachycardia. However, the use of narcotics is always dangerous in any recurring illness.

If the above simple measures fail and the patient is not on digitalis, this drug is indicated. Of course, digitalis is especially beneficial when failure is present. One of the rapidly acting digitalis preparations such as lanatoside C (Cedilanid) is preferable. Depending on the urgency of the situation they may be given either intravenously or intramuscularly.

A sound approach is to give 0.8 milligrams of Cedilandid intravenously or intramuscularly and repeat in one hour if necessary. Since digitalis increases vagal tone, some of the maneuvers such as carotid sinus pressure should be used in conjunction with digitalis. Before digitalis is used, ventricular tachycardia must be ruled out.

If the supraventricular tachycardia is thought to be due to digitalis intoxication, this drug should be discontinued and the patients with normal kidney function should be treated with potassium salts, either orally or intravenously.[1] Twenty milliequivalents of potassium diluted in 200 to 300 cc. of 5 per cent glucose in water can be given intravenously. The patient should be followed closely by electrocardiography during the infusion. This dose may be repeated or given orally as 2 grams of potassium chloride every four hours.

The uses of quinidine, as outlined in the discussion of auricular fibrillation, is applicable in supraventricular tachycardia and will not be discussed here.

Neo-Synephrine intravenously causes a rapid rise in aortic and carotid sinus pressure which in turn increases vagal tone. A number of writers have commented on the speed and effectiveness of this treatment.[2] The initial dose is 0.5 milligrams intravenously. This dose may be increased by 0.5 milligrams each time until normal rhythm is established and repeated as soon as the blood pressure has returned to pre-injection levels. Hypertension and coronary disease are frequently mentioned as relative but not absolute contraindications. Donegan and Townsend[3] point out that Neo-Synephrine does occasionally cause enough myocardial irritability to produce short runs of ventricular tachycardia and is potentially dangerous. They recommend the use of this drug after the safer therapies have been tried.

McGinn and Schluger[4] point out that the same results can be obtained with levarterenol bitartrate (Levophed) given intravenously and recommend its use in all attacks in which the blood pressure is low or normal. Occasional paroxysms of ventricular tachycardia are caused by Levophed and a solution of procaine amide should be available for immediate intravenous administration. Levophed should be given at a rate to raise the blood pressure quickly to 120 to 160 millimeters of mercury.

Parasympathetic drugs increase vagal tone and are beneficial in treatment of supraventricular tachycardia. The side effect such as salivation, nausea, muscle twitching, etc. can be controlled by atropine in doses of 0.5 to 1.0 milligrams intravenously.

Mecholyl can be given initially in doses of 5 to 15 milligrams subcutaneously. A larger dose may be given after twenty minutes. The average dose is about 25 milligrams. Usually the drug is effective in five to ten minutes. Acetylcholine intravenously in an initial dose of 20 milligrams will frequently relieve the tachycardia and has considerable less side effects than mecholyl. It can be repeated every three or four minutes in successively increasing doses (40, 60, 80, and 100 milligrams). Neostigmine given subcutaneously, intramuscularly and intravenously, in doses of 0.5 to 1.0 milligrams, is frequently effective and apparently quite safe.[1] If these parasympathetic drugs do not end the attack, they should be supplemented by carotid sinus pressure.

In summary, supraventricular tachycardia can be treated first by sedation and the various maneuvers to increase the cardio-inhibitory reflexes. If these fail, Cedilanid should be used to be followed by Neo-synephrine or one of the cholinergic drugs provided the patient is known not to have too distressing side effects to them. In conjunction with those three drugs, carotid sinus pressure should be used. If the above fail, a thorough trial of quinidine is in order.

ATRIAL FLUTTER AND FIBRILLATION

Prinzmetal[5] has produced strong evidence that auricular flutter and fibrillation are not due to the circular movement as described by Lewis. He has shown

that auricular flutter can be caused by rapid discharges from an ectopic focus in the atrium. Flutter changes into fibrillation when the rate of discharge from the ectopic focus increases above a critical level called by Printzmetal the fibrillation threshhold. At this level,[6] there is a complete breakdown of orderly electrical and mechanical activity.

In the treatment of the auricular flutter and fibrillation, any known etiological factors such as thyrotoxicosis should be eliminated. The drug of choice for flutter or fibrillation is digitalis. Full digitalizing doses are required to reduce the ventricular rate.

In flutter after full digitalization, the patient may convert to sinus rhythm, the flutter may persist with the same or more A-V block, or atrial fibrillation may develop. Some cardiologists recommend discontinuing the digitalis if fibrillation develops in the hope that a normal sinus rhythm will be produced. However, I believe if flutter persists or fibrillation develops, digitalis should be continued in maintenance doses and quinidine therapy added.

The use of quinidine for digitalized cases of flutter and fibrillation is similar and will be discussed together. Auricular fibrillation is an uneconomic cardiac rhythm and with few exceptions conversion should be attempted with quinidine. Cases [7] in which conversion should not be attempted are (a) cases with complete heart block, (b) elderly patients with old fibrillation whose failure is well controlled by digitalis and a low salt diet and who do not have a history of embolic phenomena. Also, patients with a history of severe sensitivity reaction to quinidine such as thrombocytopenic purpura and fever, should not be treated. Before quinidine therapy is given, most experts feel that the fibrillating patient should be on anticoagulant therapy for ten to fourteen days. This is to prevent any recent thrombosis formation that might be the source of emboli during conversion to sinus rhythm. However, a number of authors [8, 9, 10] point out the rarity of embolization during conversion and question whether the benefits from anticoagulants outweigh their possible dangers and the added time and expense necessitated by them.

Bedard [9] reports therapy had to be stopped in 6 cases out of 67 treated with quinidine due to toxic complications or side effects. Severe gastrointestinal upset, frequent ventricular ectopic beats, ventricular tachycardia, transient ventricular fibrillation, and nodal rhythm are indications for discontinuing treatment. Prolongation of QRS intervals over 50 per cent [12] and increasing degrees of heart block also require discontinuance of treatment. High fever or blood dyscrasias in rare instances may force abandonment of therapy. Patients should have an electrocardiogram and should be seen by a physician before the daily course of quinidine therapy.

Most authorities [7, 9] recommend starting quinidine therapy, after an initial test dose, on a schedule of 0.2 grams every two hours for five doses making a total dose of 1.0 gram the first day. This dose is increased 0.1 gram per dose daily, that is, 0.3 grams five times the second day, etc. (Table 1). This schedule may be continued until 1.0 gram doses are being given, which amounts to 5.0 grams per day.[11] When more rapidly increasing action is indicated the dose may be increased 0.1 grams to 0.2 grams after three or four doses and this schedule repeated until normal rhythm develops or toxicity occurs.

TABLE 1.
QUINIDINE DOSE SCHEDULE

Day	Individual Dose	Total Dose
1.	0.2 grams q 2 hours x 5	1.0 grams
2.	0.3 grams q 2 hours x 5	1.5 grams
3.	0.4 grams q 2 hours x 5	2.0 grams
4.	0.5 grams q 2 hours x 5	2.5 grams
5.	0.6 grams q 2 hours x 5	3.0 grams
6.	0.7 grams q 2 hours x 5	3.5 grams
7.	0.8 grams q 2 hours x 5	4.0 grams
8.	0.9 grams q 2 hours x 5	4.5 grams
9.	1.0 grams q 2 hours x 5	5.0 grams

Sokolow [12] has pointed out the variations of blood levels in different people

on the same dose of quinidine. This variation in serum concentration on identical dose schedules may explain some of the failures of quinidine therapy. Maximum serum concentrations come about two hours after the last dose. After five or six doses every two hours, excretion and metabolic breakdown about balance the absorption and no further rise in level will occur unless the dose is increased.

If the drug is given every four hours, this balance is not reached until forty-eight to seventy-two hours. Some authorities recommend giving the drug every four hours in doses beginning at 0.2 grams and increasing every seventy-two hours by 0.2 grams per dose until the fibrillation is controlled.

In 700 cases [12] Sokolow found that the signs of myocardial toxicity were rare with serum levels of 6 micrograms or under. In a large series of patients 80 per cent of possible conversions were made with minimum toxicity on the dose of 0.6 grams every two hours for five doses or 3.0 grams per day. Higher doses gave only 20 per cent additional conversions and much toxicity.

Relapses usually are related to the low serum concentrations. Doses of 0.2 grams to 0.4 grams three times a day often do not give serum levels adequate to prevent recurring fibrillation. Frequently, doses of 0.4, 0.6, or even 0.8 grams every six hours are required.

Parenteral quinidine may occasionally be indicated. Quinidine gluconate is a very satisfactory preparation. The usual dose is 0.8 grams, intramuscularly, which may be given three times or rarely four times at one or two hour intervals. The peak serum concentration occurs about one hour after injection and rises rapidly on repeated injections. Occasional moderate hypotension results after intramuscular quinidine. Only under the most urgent circumstance is intravenous quinidine indicated. It can be given by diluting 0.8 grams of quinidine gluconate to 50 cc. and giving at a rate not to exceed 1 cc. or at most, 2 cc. per minute. An electrocardiogram should be taken constantly during the infusion and blood pressure watched closely. Rather marked hypotension occurs frequently.

I will not discuss the use of procaine amide (Pronestyl) in the treatment of auricular fibrillation. Its use as discussed under ventricular tachycardia will also apply to auricular fibrillation. It appears to be of some value in the treatment of auricular fibrillation of short duration.[1, 13]

VENTRICULAR TACHYCARDIA

Therapy in this arrhythmia is aimed at reducing the excitability or irritability of the ectopic focus producing the tachycardia. The drugs of choice are quinidine and procaine amide (Pronestyl). The use of quinidine has been discussed in connection with auricular fibrillation. Procaine amide can be administered orally, intramuscularly, or intravenously. Intravenously, the drug frequently produces rather marked hypotension and is rarely indicated as the drug is rapidly effective intramuscularly. When injected intravenously, it is best to dilute 1.0 grams in 100 cc. of glucose and give slowly at, not over, 100 milligrams per minute [13] until the desired effect is obtained or 1.0 to 2.5 grams [14] are given. The blood pressure should be followed closely and an electrocardiogram taken continuously. Due to the frequent hypotension produced, it is advisable to have a vasopressor drug available.

After intramuscular procaine amide (Pronestyl), an effective blood level is obtained in fifteen minutes to one hour. Hypotension is much rarer than with the intravenous route. The initial dose should be about 1.0 gram. If indicated, the subsequent dose of 1.0 gram can be repeated every one to three hours.

By mouth, the dose is usually 1.25 grams followed in one hour by an additional 0.75 grams.[13] If this dose is not effective, doses [1] of 0.5 grams to 1.0 grams repeated every two hours may restore normal rhythm.

Significant toxic effects have been limited to the gastrointestinal tract and circulatory systems. High oral doses (6 to

8 grams a day) frequently produce anorexia, nausea, and vomiting. Hypotension is infrequent on oral doses. A single oral dose of Pronestyl will give some transient electrocardiographic changes in about one-third of the patients that may persist on continuous therapy. These consist of widening of the QRS complex and ST interval, and lowering the amplitude of QRS and T waves. The prolongation of the QRS over 25 per cent is probably indication for discontinuing the drug. If the drug is given in large doses, the patient should be followed rather closely with electrocardiograms.

Of course, if ventricular tachycardia is due to digitalis intoxication, the treatment of choice is discontinuance of digitalis plus potassium therapy as outlined earlier.

STOKES-ADAM SYNDROME

Complete heart block with idioventricular rhythm is frequently associated with syncopal attacks. The majority of syncopal attacks [1] are due to ventricular asystole; however, they are sometimes due to ventricular tachycardia and fibrillation. If possible, the exact mechanism of the attack should be determined and the treatment based on this information. Of course, in well established complete heart block without symptoms, no treatment is necessary.

In the past, the treatment [10] of choice for these attacks has been epinephrine subcutaneously or intramuscularly. The main objection to epinephrine is its tendency to produce ventricular fibrillation.

Isopropylarterenol (Isuprel) has been reported as an effective drug in treatment of these attacks by several authors.[8, 10, 15] Isuprel causes an increase in cardiac rate and the amplitude of contraction. It increases cardiac irritability but has, to little if any degree, the undesirable tendency to produce ventricular fibrillation. Schumaker and Schmock [15] cite several cases in which ventricular tachycardia with complete heart block was effectively corrected by isuprel given subcutaneously. When the underlying mechanism of syncope is unknown, the treatment of choice is isuprel. The usual dose [1] is 0.2 milligrams subcutaneously. In very urgent cases, 0.02 milligrams may be given intravenously. For long term prophylactic therapy, the drug can be given sublingually in 15 milligram tablets three or four times daily.

It is important to emphasize here that procaine amide and quinidine are contraindicated in treating syncopal attacks associated with complete atrioventricular block.

Bellet and Brody [16] recommend molar sodium lactate intravenously for the treatment of syncope associated with asystole in complete heart block. Of course, the lactate must be given as soon as possible, preferably within one or two minutes after the attack has begun. The dose is 20 to 80 cc. given by syringe in a period of one to two minutes. Following this injection, an infusion should be started and the speed and the amount of molar sodium lactate regulated closely. When therapy needs to be given over a period of six to twelve hours, a rate of 15 to 20 drops per minute is usually satisfactory. However, if seizures tend to recur, the infusion can be speeded up.

The oral administration of molar sodium lactate as maintenance treatment to prevent frequent recurrence of the Stokes-Adams attacks is being investigated by several workers but I have no definite information about their conclusion except that the initial results do look encouraging. Molar sodium lactate is relatively nontoxic; the main toxic manifestation being the occasional occurrence of extra systoles and rarely pulmonary edema. Neither of these was any significant problem in the 46 cases in which molar sodium lactate was used by Bellet and Brody.

Beneficial effects of molar sodium lactate are probably due to the mild alkalosis it produces and to the rapid utilization of the lactate by the heart muscle as fuel.

SUMMARY

This paper reviews the drug therapy of premature systoles, supraventricular tachycardia, auricular flutter, auricular fibrillation, ventricular tachycardia, and complete heart block with Stokes-Adams

syndrome. The routes of administration and the dose of the various drugs are given.

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THE PICKWICKIAN SYNDROME *

A Case Report

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The association of extreme obesity, cyanosis, and somnolence was noted by Charles Dickens in the Pickwick Papers [1] in 1837, and was labeled "A Pickwickian Syndrome" by Burwell et al [2] in 1955. In the latter article, the syndrome in its entirety was described for the first time, and eight clinical features were listed: (1) marked obesity, (2) somnolence, (3) twitching, (4) cyanosis, (5) periodic respiration, (6) secondary polycythemia, (7) right ventricular hypertrophy, (8) right ventricular failure. It is worthy of note that this case fulfills all eight of these criteria.

The largest series of cases of this type to date is six reported by Estes et al.[3] They postulate that hypoventilation leads to hypercapnia and hypoxia and that these contribute to the development of polycythemia, pulmonary hypertension, right-sided cardiac enlargement, and ultimately to heart failure. This group, in common with all the others reporting a similar entity, feels that the symptoms and findings are related to obesity. These findings are generally reversible and the key to reversal is weight reduction.

CASE REPORT

The patient, a 53 year old white male, was first seen at the North Louisiana Clinic in 1950, at which time he gave a history of swelling of the abdomen of several months duration. He had a history of chronic alcoholism intermittently since 1923, and drank particularly heavy during a period from

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1923 to 1931. Bromsulfalein excretion was markedly impaired and he had fasting blood sugars which were always slightly elevated. His weight, in 1950, was 260 pounds, representing an increase of 100 pounds since 1932. He was considered at that time to have hepatic insufficiency and was treated with diet and insulin and was digitalized with apparent benefit.

He responded well to the conservative management and was not seen again until January 8, 1957, when he gave a history of having developed marked shortness of breath in April 1956. He saw a local physician who advised hospitalization but he decided to go to a Clinic in another city for evaluation. He was detained at the other group for five weeks and was told that he had asthma and placed on some form of inhalation therapy which he stated helped his shortness of breath. He has had a history of chronic bronchial irritation with frequent attacks of bronchitis and occasional coughing and wheezing all of his life and stated he had never been able to breathe really well. However, in January 1957, he noted a marked sense of fullness and soreness in the right side along with steadily increasing dyspnea.

Rales were heard at both bases and scattered wheezes were heard throughout the chest. He had 3 plus edema of the lower extremities. His blood pressure was 210/-136 and urinalysis at that time revealed 1 plus albumin with coarsely and finely granular casts. No sugar was found in the urine. Fasting blood sugar was 123 mgm. per cent, NPN 27 mgm. per cent. Total proteins were 5 grams with 3.2 of albumin and he had a BSP retention of only 2.5 per cent in 45 minutes. His prothrombin time at that time was 85 per cent and he had a negative cephalin cholesterol flocculation. Weight was 282 lbs.

He was taking 30 mgm. of Benzadrine each morning in order to stay awake and he exhibited marked evidence of cyanosis with extreme changes appearing in the nail beds and around the face. Orthopnea was so profound at this time that he was able to sleep only sitting in a chair. This was improved somewhat by stopping his Benzedrine but orthopnea gradually became worse. Repeated blood counts showed him to have as high as 6.2 million RBC's, hemoglobin at that time running well above 100 per cent.

The possibility of Cushing's syndrome was considered but was not substantiated. He was referred to the Lung Station at Confederate Memorial Medical Center where studies revealed findings shown in Table 1.

On fluoroscopy the diaphragms were elevated by the abdominal obesity and there was evidence of slowed diaphragmatic motion. The impression was that of mild obstructive ventilatory disease.

The marked desaturation of the arterial blood at rest did not seem consistent with the degree of ventilatory impairment with a normal ventilation equivalent.

TABLE 1.

	Observed	Predicted
Maximal breathing capacity	38-1/m	Over 124/m
Vital capacity	1800 cc	3790 cc
Breathing reserve	77%	95%
Air velocity index	.65	1.00
Aretrial O_2 saturation:		
Resting breathing room air	60.5%	96%
Resting breathing pure O_2 for 10 min.	95.5%	100%

The failure of the patient to saturate the blood after 100 per cent 0_2 seemed to indicate a venous-arterial shunt.

He was placed on a 1200 calorie reducing diet with supplementary vitamins, was digitalized cautiously and was treated with a hypotensive agent. The diet was salt free. He did fairly well, although he continued to have intermittent episodes of edema. On July 1, 1957, he was markedly edematous. At that time he had an albumin fraction of only 2.56 with a globulin of 2.21, and in view of the steadily increasing edema along with a cardiac rate of 88 per min. he was given an ampule of salt free serum albumin. Following this he felt markedly improved for several days and urinary output was satisfactory, but then he began to fill up again and was extremely uncomfortable. His weight was back up to 298 lbs. He

exhibited 4 plus edema of the lower extremities, marked edema of the abdominal wall and dyspnea on minimal exertion with orthopnea to the point where it was impossible for him to rest in any position other than an erect one. At that time, he was referred to Dr. Edgar Hull in New Orleans and was seen during his stay in New Orleans by Drs. Hull and Garcia. At this point I will ask Dr. Garcia to fill in the part of the picture dealing with his hospitalization in New Orleans.

Dr. John E. Garcia (New Orleans): The patient entered Mercy Hospital on August 2, 1957, with a history as given by Dr. Herold. On physical examination he was seen to be very obese, weighing 310 lbs. on admission. Lips and face were deeply cyanotic. The lung fields were clear, the heart regular, with a blood pressure of 160/90. Auscultation of the heart revealed the presence of a systolic and diastolic murmur best heard in the 2nd and 3rd anterior interspaces along the left sternal border. Flouroscopy and x-ray of the chest revealed marked cardiac enlargement due to right ventricular hypertrophy. The electrocardiogram was within normal limits, showing only digitalis effect and an occasional ventricular premature beat. The abdomen was very prominent and ascites was considered likely. There was marked edema of the lower extremities and subcutaneous tissues of the abdomen extending to the costal margin.

Laboratory findings on admission: Red blood cells 5.6 million with 16 gms. of Hgb., hematocrit 55, normal white blood cells and differential, blood glucose 114, blood urea nitrogen 45, creatinine 1.0. The urine contained 4 plus albumin and hyaline and granular casts. The BUN a few days after admission dropped to 33, the CO_2 combining power was 63 vol. % (28 meq.), chlorides 100 meq. (580 mgm. %), K 5.5 meq. and NA 143 meq.

It was noted that the patient became very drowsy and would fall asleep readily (while being examined, or even during conversation.) He was easily awakened and while awake was perfectly lucid, not at any time being really stuporous or mentally confused. Jerky, muscular twitchings were also observed from time to time.

Treatment in the beginning consisted of digitalis, ammonium chloride, mercurial diuretics and a low salt 1,000 calorie diet. Abdominal paracentesis was attempted three times, a small amount of fluid being obtained on the third attempt by using a very long needle. Response to this therapy was slow and ineffective and it was felt that more radical measures would be necessary. Upon the suggestion of Drs. Edgar Hull and Louis Monte 275 mgm. of cortisone daily was begun on August 12, 1957, and was continued for the following eighteen days, his diet at the same time being reduced to 800 calories a day. It was at once apparent that the cortisone was exerting a beneficial effect, producing a marked diuresis and accordingly a continuous and dramatic loss of weight. At the end of eighteen days the dosage of cortisone was reduced to 200 mgm. a day and then gradually to 100 mgm. a day. During this time his entire clinical picture was one of improvement, with complete loss of edema, change in appearance and a loss of 71 lbs. in weight. Cyanosis improved and the muscular twitching disappeared altogether. No adverse effects were produced by the cortisone. He was discharged from the hospital on September 6, 1957, with a diagnosis of cor pulmonale, obesity, and secondary polycythemia, which make up the clinical condition known as the Pickwickian Syndrome.

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DISCUSSION

Dr. John E. Garcia (New Orleans): This syndrome is called the Pickwickian syndrome because of the resemblance of the patient to the "fat and red-faced boy in a state of somnolency" as described by Charles Dickens. This same clinical entity has been variously described as "Extreme obesity associated with alveolar hypoventilation"; "A cardiopulmonary syndrome associated with extreme obesity"; "Obesity, polycythemia and alveolar hypoventilation"; "Progressive respiratory

distress"; "Cardiopulmonary syndrome caused by obesity"; and "Obesity heart disease". It is obvious that obesity is the common factor and that weight reduction is important, because many aspects of this syndrome can be reversed by a sufficient loss of body weight.

In this particular patient cortisone was used as a diuretic, as has been reported in cases of refractory edema due to heart failure. We believe that this is the first time the use of cortisone has been reported in this particular syndrome. As further evidence of its efficacy we have used cortisone successfully in two additional patients with typical features of the "Pickwickian Syndrome." Both of these patients, incidentally, are females. The exact mode of action of cortisone is obscure.

All of the credit for success in treatment cannot of course be attributed to cortisone. The usual cardiac failure regimen was employed together with a restricted diet and oral diuretics. Diuril was not yet on the market at the time but is now being used on the other two patients.

The patient under discussion now weighs 235 lbs., feels well, has no edema or shortness of breath, and his RBC is down to 4.5 million with 13.5 gms. of Hgb.

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THE PRESENT STATUS OF MUSCLE RELAXANTS *

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Search continues for the ideal muscle relaxant since Sir Walter Raleigh [1] first mentioned discovery of Guiana in 1595. The botanical sources of the various curares have never been satisfactorily identified nor have their active ingredients ever been adequately analyzed. Some semblance of order in this chaotic complex was obtained in 1897 by Boehm,[2] who distinguished the curares, depending on the container in which they were available, as tube, pot, and calabash. Real progress in the clinical application of curare was made possible by the cooperation of several investigators. McIntyre and associates [3] prepared first a purified curare extract from crude curare brought to the United States by Gill.[4] Curare was first used for anesthesia by Griffith and Johnson,[5] who at the suggestion of L. H. Wright administered it in the form of Intocostrin® to anesthetized patients.

The synthetic compound, succinyldicholine, which approaches more closely the ideal muscle relaxant, has been lying idly on the shelves of chemists since it was first prepared by Hunt and Taveau in 1906.[6] Forty-three years later, Bovet and associates [7] discovered the neuromuscular activity of this compound. In recent years numerous agents have been synthetized. Some of these, for example, suxethonium (Brevedil "E") and laudexium (Laudolissen®), have been used clinically.

The main ingredient of the various curares made by the Indians of South America was either the bark of one of the many varieties of the genus strychnos, most frequently *Strychnos toxifera*, or the vines of *chondrodendron tomentosum*.

CHEMISTRY

Boehm [2] was the first to approach systematically the problem of isolation of curare alkaloids. He isolated quaternary ammonium bases called curarines from the three available varieties of crude curare. According to their source of origin, he named the products obtained from calabash curare, curarines, those from pot curare, protocurines, and those from tube curare, tubocurarines. He also isolated from pot and tube curare tertiary bases with weak neuromuscular activity which he termed curines.

Of the numerous alkaloids isolated from calabash curare, the most interesting is toxiferine-I, which although perhaps the most potent of all neuromuscular blocking agents, contains only one quaternary ammonium group.

Another naturally occurring alkaloid

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with neuromuscular blocking activity is B-erythroidine. In contrast to the curare alkaloids this compound is a tertiary amino derivative and contains no quaternary ammonium groups. Quaternary derivatives of naturally occurring cinchona, pyridine, isoquinoline, and tropine alkaloids are also capable of interrupting neuromuscular transmission.

Crum-Brown and Fraser [8] were the first to attempt to produce synthetic muscle relaxants by synthesis of quaternary methylstrychnine and methylbrucine derivatives. More recent efforts in this direction have centered around the importance of optimally placed quaternary ammonium groups. The muscle relaxants used most frequently in clinical practice all contain two or more quaternary ammonium groups. These groups, whether separated by a straight chain, as in decamethonium or succinylcholine, or by aromatic radicals, as in benzoquinonium, gallamine or laudexium, are about 15 Angstrom units from one another.

In general, converting a tertiary nitrogen compound into a quaternary one will increase neuromuscular activity. Substitution of the methyl radicals in the quaternary ammonium groups with ethyl radicals or with nitrobenzyl radicals changes certain depolarizing muscle relaxants to nondepolarizing agents.

PHYSIOLOGY

After the motor nerve fiber penetrates the sarcolemma of the muscle fiber, it loses its myelin sheath and the neurilemma blends with the sarcolemma. The axoplasm spreads out in close contact with the sarcolemma and it is assumed that the side facing the muscle fiber is covered by the terminal membrane. The terminal membrane is separated by a microscopic gap, the subneural space, from the sole plate of Kuhne. Morphologically, the sole plate is modified sarcoplasm of the muscle fiber. The side of the sole plate facing the terminal membrane is covered by the postsynaptic or postjunctional membrane. The subneural space is therefore limited on one side by the terminal membrane of the motor nerve ending and on the other by the postjunctional membrane.

The essentials of neuromuscular transmission, which according to Nachmansohn as cited by Wilson,[9] are basically not different from axonal conduction, can be summarized as follows:

The postjunctional membrane contains, acetylcholine, four different types of proteins associated with acetylcholine metabolism and various ions. The resting postjunctional membrane is polarized. The interior of the postjunctional membrane is rich in potassium ion and poor in sodium ion, and is electronegative with reference to the outer surface, which is rich in sodium and poor in potassium.

The electrostatic difference between the outer surface and the interior of the resting end-plate is about -90 millivolts. This is called the resting membrane potential.

When the nerve impulse reaches the myoneural junction, acetylcholine is liberated from its protein bondage. The liberated acetylcholine is adsorbed immediately to the second protein, which is also known as the cholinergic receptor of the end-plate. Owing to the adsorption of acetylcholine to it, the cholinergic receptor changes its configuration and thereby increases the permeability of the postjunctional membrane for sodium and potassium ions. Potassium diffuses out of, and sodium diffuses into, the end-plate and the potential difference between the interior and exterior decreases. This rapid change in the negativity was termed "end-plate potential" by Eccles and coworkers.[10] This potential change in about 0.3 milliseconds decreases the potential to -45 millivolts. At this stage, there is no spread to muscle fiber. When this stage is surpassed, the end-plate potential becomes action potential.

The end-plate remains depolarized for only 2 to 3 milliseconds because shortly after its adsorption to the cholinergic receptors, acetylcholine is attracted to the third protein, the acetylcholine esterase, present in the postjunctional membrane, and is rapidly hydrolyzed to acetic acid and choline. Simultaneously the postjunctional membrane becomes repolarized and the membrane potential of the end-plate returns to its resting level of -90 millivolts.

Subsequently the hydrolysis products of acetylcholine, choline and acetic acid, are resynthesized by the fourth protein, called choline acetylase, to acetylcholine which is adsorbed to the storage protein, thereby completing the cycle.

Anything that will interfere with either the depolarization or the repolarization of the end-plate will inhibit neuromuscular transmission.

Nondepolarizing and depolarizing drugs compete with acetylcholine for the cholinergic receptors of the end-plate and are capable of preventing the access of acetylcholine to these receptors partly because of their greater stability and partly because of their greater affinity for these receptors. After being adsorbed to the receptor proteins, the members of the two groups behave differently.

The nondepolarizing agents play a passive role, and their activity is limited to the prevention of access of acetylcholine to the receptors.

The depolarizing agents, like acetylcholine, cause depolarization of the end-plate but depolarization persists, spreads to the fiber adjacent to the end-plate and renders the muscle fiber insensitive to subsequent indirect stimuli.

The neuromuscular block caused by depolarizing agents produces flaccid paralysis which is preceded by transient stimulation in mammalian muscle.

The different depolarizing muscle relaxants have an additive effect and their activity is antagonized by nondepolarizing muscle relaxants.

Ether and cyclopropane do not potentiate the depolarizing agents. Procaine, administered before, antagonizes, but administered after, potentiates the block caused by depolarizing agents. Acetylcholine and anticholinesterases increase blocking activity. Edrophonium has either no effect or potentiates depolarization block.

Potassium, anoxia or prior tetanization does not antagonize the block. Anodal current antagonizes and cathodal current potentiates depolarizing agents.

PHARMACOLOGY

McIntyre [11] observed that curare in subparalytic doses caused an increase, then a decrease, in the electroencephalographic activity of dogs. Ellis and associates [12] found that decamethonium and succinylcholine had an effect on the respiratory center similar to that of d-tubocurarine. The central effect of succinylcholine seemed less pronounced than that of d-tubocurarine and decamethonium.

Muscle relaxants can influence respiration by paralyzing respiratory muscles, by depressing the activity of the respiratory center, by influencing the chemoreceptors of the carotid body, and by bronchoconstriction due to histamine release.

The autonomic effects of muscle relaxants are due to substrate competition with acetylcholine for the cholinergic receptors of the autonomic ganglia. Of the clinically used muscle relaxants, d-tubocurarine, possesses the greatest autonomic activity.

Of the clinically used muscle relaxants, d-tubocurarine exhibits the most pronounced effects on the cardiovascular system. The cardiac sympathetics, however, were found to be ten times as resistant to d-tubocurarine as the myoneural junction. d-Tubocurarine and gallamine both exhibited a protective action against epinephrine induced cardiac arrythmias in cats anesthetized with cyclopropane.

Decreased peristalsis and intestinal distention were reported after paralyzing doses of d-tubocurarine. Gallamine, benzoquinonium, decamethonium and succinylcholine have little effect on tone and motility of the intestinal tract.

Release of histamine is more prone to occur with d-tubocurarine than with any of the other clinically used muscle relaxants.

Cholinesterase is inhibited by d-tubocurarine, gallamine, benzoquinonium, decamethonium and succinylcholine.

Formation of urine was reported to be diminished by d-tubocurarine in dogs.[13] The clinically used muscle relaxants are excreted partly or wholly unchanged in the urine. Because of hydrolysis only 5 to 15 per cent of succinylcholine administered

intravenously was found to be excreted unchanged in the urine of cats and mice.

Uterine contractions were not affected by paralyzing doses of d-tubocurarine in dogs.[14]

It has been recently reported that the intravenous administration of succinylcholine causes sustained elevation of the intraocular pressure in conscious human volunteers [15] and anesthetized man.[16] Mammalian eye muscles may react to succinylcholine with contracture, that is, nonpropagated sustained contraction localized to restricted regions of the fibers, instead of contraction.

The action of muscle relaxants is considerably prolonged when they are administered by other than the intravenous route.

Without artificial respiration the primary cause of death is respiratory arrest.

USES

The most common uses of muscle relaxants are for endotracheal intubation, endoscopy, supplementation of general anesthetics, treatment of laryngospasm, abdominopelvic examination and reduction of dislocations and fractures. Muscle relaxants are also used in convulsive shock therapy, treatment of certain diseases such as Parkinsonism and tetanus, and diagnosis of such diseases as myasthenia gravis.

COMPLICATIONS

Improper selection or administration of excessive doses of the muscle relaxant may lead to serious complications that occasionally may endanger the patient's life. In general, these complications are due to: (a) excessive and prolonged action at the neuromuscular junction; (b) their effect on ganglionic autonomic transmission, or (c) their ability to liberate histamine from the tissues. The complications may occur both during anesthetization and after the effects of the anesthetic have worn off and can affect the respiratory and circulatory systems, the gastrointestinal tract or the voluntary muscles.

Hypotension is caused by ganglionic blocking action, release of histamine, or a combination of these two factors. The incidence is low and its intensity is seldom great.

The elevation of blood pressure associated with administration of succinylcholine can be effectively counteracted with hexamethonium. Administration of gallamine almost invariably causes acceleration of the heart rate. In contrast, use of benzoquinonium occasionally causes bradycardia.

The effect of muscle relaxants on the myocardium is negligible. Depending on the relaxant used, 200 to 1500 times the paralyzing dose can be administered intravenously before the development of cardiac arrest. It is, therefore, safe to assume that inadequate oxygenation or myocardial depression caused by excessive concentrations of the general anesthetic agent should be held responsible for cardiac arrest.

ANTAGONISTS

With the correct selection and method of administration of muscle relaxants, use of antagonists should seldom be necessary. Doughty and Wylie [17] and Hunter [18] suggested the use of atropine sulphate with neostigmine. Edrophonium is less effective in deeply curarized patients than in those in whom the effect of the muscle relaxant has started to wear off. Larger doses are required when ether, cyclopropane, or nitrous oxide is used.

The interval between the intravenous injection and the development of effect is shorter for edrophonium than for neostigmine. The duration of action of edrophonium is also shorter than that of neostigmine.

Theoretically, there are at least three possibilities for cessation of neuromuscular block caused by nondepolarizing agents.

1. The concentration of the agent at the end-plate decreases by redistribution due to excretion, decomposition or uptake by other tissues below a level at which the acetylcholine present in physiologic concentrations at the end-plate can generate end-plate potential of sufficient intensity to initiate muscular contraction. This is the natural course of events.

2. The concentration of acetylcholine at the end-plate can be raised by the use of cholinesterase inhibitors (e.g., neostigmine). The increased number of acetylcholine molecules will displace the molecules of the blocking agents from the receptors,

and the released molecules are carried away by the circulation.

3. The molecules of the nondepolarizing blocking agents may be displaced by molecules of depolarizing substances (e.g., edrophonium) which have a greater affinity for the end-plate receptors than the nondepolarizing blocking agents. Here again the released relaxant molecules are removed by the circulation.

The side effects and possible complications of both neostigmine and edrophonium are due primarily to their muscarinic properties, caused by the action of an excess of acetylcholine on the postganglionic component of the parasympathetic system.

The greatest danger reported after the use of neostigmine is pronounced slowing of the heart rate, which in extreme cases may cause cardiac arrest. Bradycardia is less pronounced with edrophonium, especially if general anesthesia is maintained by ether. Excessive salivation and bronchial secretion, bronchiolar spasm and intestinal hypermotility are pronounced after neostigmine. Intestinal hypermotility is especially dangerous after gastrointestinal operations. Another complication is recurarization in a seemingly recovered patient who is left unobserved.

CONCLUSIONS

Of the presently available muscle relaxants, with the exception of few situations, succinylcholine is the drug of choice. However, in at least two respects succinylcholine falls short of the pharmacologically ideal muscle relaxant. One of these is that the block produced by succinylcholine is depolarizing and, therefore, the neuromuscular junction is not in the physiologic resting state while under its influence. The second disadvantage is that its primary breakdown product, succinylmonocholine, also has some neuromuscular activity and, therefore in certain circumstances the return of normal respiratory activity may be delayed after its use.

The type of block obtained with succinylcholine depends upon the properties of the receptor protein of the species involved. In some species, in which the configuration of the receptor protein can be changed easily, relatively small doses produce depolarization block. In those in which the receptor proteins are more resistant to configuration changes, small doses produce no neuromuscular block and large doses cause nondepolarizing block.

A good example of the decreased sensitivity of the end-plate to depolarization is seen in patients with myasthenia gravis in whom depolarization relaxants produce a nondepolarizing block.

The ideal muscle relaxant should be nondepolarizing, short-acting and controllable as succinylcholine; its fate in the organism should be little affected by pathologic changes, its breakdown products should have no neuromuscular blocking effect and it should be easily reversible by a harmless antagonist.

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THE USE OF OMNADIN* IN REPEATED AND CHRONIC INFECTIONS ASSOCIATED WITH A LOW SERUM GAMMA GLOBULIN

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A preliminary report on the use of Omnadin* a brand of prolipin lipoprotein compound in cases with repeated and chronic infections associated with a low blood serum gamma globulin is being presented. This study was prompted by the fact that many patients who have been having recurrent upper respiratory infections associated with low grade fever of undetermined origin often show by serum paper electrophoresis a decrease from the normal range of the gamma fraction of the blood. The exact normal value for this particular globulin fraction has not been fully established in the literature, but, from the statistics of this laboratory, the normal range has been set between 0.80 gms.% and 1.5 gms.%

Upon investigation of this type of patient with the gamma globulin level below 0.80 gms.%, it was suggested that the decrease could be a result of the concurrent disease or that some deficiency in the immune mechanism was present. Since it is a known fact that gamma globulin plays an important role in antibody formation, an attempt was made to find a method to raise the gamma globulin level. Inasmuch as gamma globulin per se is a costly medication and produces only a short lived passive immunity, a less expensive substance, Omnadin, was used with the hope of producing, or of stimulating, an active immunity.

With this thought in mind several selected cases were started on Omnadin with the following dose schedule:

1 cc. daily for five days, subcutaneously

1 cc. three times weekly for one week, subcutaneously

1 cc. twice weekly for four weeks, subcutaneously

1 cc. once a week for four weeks, subcutaneously

1 cc. monthly for several months, subcutaneously

*A brand of prolipin lipoprotein compound, supplied by Winthrop Laboratories for this investigation.

CASE REPORTS

A review of these cases is as follows:

Case No. 1-A.P., white female, followed from birth to 16 months. She had numerous bouts of tonsilitis, nasopharyngitis, pyelitis, and the infectious childhood diseases, measles and chickenpox. These required numerous medications, including penicillin, sulfa, and tetracycline drugs. For a ten month period following administration of Omnadin, the child had only one bout of otitis media and received one round of penicillin therapy for this infection. There was a 13 pound weight gain during this period.

Case No. 2-B.N., white male, was followed from birth to 4½ years of age. He was seen in the office on numerous occasions with allergic dermatitis, nasopharyngitis, tonsillitis, along with otitis media. He was hospitalized six times during this period for infections, and received antibiotics during each bout of illness. During the eighteen months after the administration of Omnadin he was seen one time with tonsillitis and one time with allergic dermatitis. Eight pounds of weight were gained during this period.

Case No. 3-S.J., white female, was followed from birth to 4½ years of age. She had measles, chickenpox, and numerous bouts of upper respiratory infection. Each infection required antibiotic therapy. She has been under observation for nine months after Omnadin therapy and has had no infections during that period of time.

Case No. 4-R.D., white male, with a follow-up from 8 months to 1½ years of age. The past history revealed bronchopneumonia on 4 occasions, bouts of tonsillitis, nasopharyngitis with otis media. He received all types of antibiotic therapy during this period of time. He has been seen during a ten month period after administration of Omnadin, has had no infections and has gained 10½ lbs.

Case No. 5-R.B., white male had been under observation from the age of 4 to 6 years. Prior to the administration of Omnadin, he was treated for bronchopneumonia twice, otitis media on 4 occasions, nasopharyngitis on 1 occasion, tonsillitis on 3 occasions, and received antibiotic therapy for each infection. During an eight month period follow-up after administration of Omnadin the patient had two bouts of tonsillitis with otitis

TABLE 1

Case No.	Total Protein	Albumin	Globulin	A/G Ratio	Alpha I	Alpha II	Beta	Gamma	Date
1	6.15	3.98	2.17	1.8	0.28	0.76	0.52	0.62	3-31-56
	5.90	3.37	2.56	1.3	0.28	0.57	0.81	0.87	6-18-56
2	6.72	3.43	3.29	1.1	0.31	1.14	1.32	0.52	7- 9-56
	6.82	3.23	3.59	0.9	0.41	1.26	0.94	0.98	1- 5-57
3	6.29	3.91	2.38	1.6	0.46	0.55	0.78	0.60	7-12-57
	6.65	3.81	2.84	1.34	0.29	0.44	1.10	1.01	10- 2-57
4	6.12	2.74	3.38	0.8	0.21	1.57	1.0	0.61	8-30-56
	6.73	3.50	3.23	1.1	0.30	0.77	1.07	1.09	10- 3-56
5	6.23	2.93	3.30	0.9	0.66	1.14	0.88	0.62	10- 6-56
	7.32	3.40	3.92	0.9	0.36	1.22	1.25	1.02	1-15-57
6	6.25	3.48	2.77	1.2	0.37	1.01	0.89	0.50	12-19-56
	6.29	3.46	2.83	1.2	0.43	0.61	1.07	0.72	3-12-57
7	7.00	4.05	2.95	1.4	0.39	1.17	0.68	0.71	10- 3-56
	7.41	4.28	3.13	1.37	0.40	0.70	1.06	0.90	1-23-57

media and appendicitis. He did receive penicillin on one occasion and achromycin on another occasion, 5 lbs. weight gained.

Case No. 6-J.S., white female was followed from birth to 6 months. Prior to Omnadin, she had bronchopneumonia on 2 occasions, numerous bouts of tonsillitis, nasopharyngitis, upper respiratory infections and received antibiotic therapy on each occasion. For a nine month period following the administration of Omnadin, she was treated one time for a bout of tonsillitis. She gained 7 lbs. weight.

Case No. 7-B.G., white female was followed from birth to 1 year of age. She had numerous bouts of upper respiratory infection with otitis media and bronchopneumonia, and received antibiotic therapy with each bout of infection. For a nine month period following the administration of Omnadin she has had one upper respiratory infection and one bout with tonsillitis. Received antibiotic therapy with tonsillitis. Weight gained approximately 6 lbs.

Above is a summary of 7 patients who were put on the prescribed dose schedule. These 7 cases are still receiving a monthly injection of 1 cc. of Omnadin upon insistence of the parents who have been impressed with the results.

It is apparent from the above case studies as noted in Table 1 that there is a rise in the gamma globulin level concomitant with the administration of Omnadin. This fact may be coincidental but may represent a rise in the antibody containing fraction of the gamma globulin (stimulated by the drug). Marked subjective as well as objective improvement was noted in all 7 cases reported.

Omnadin has also been administered to approximately 35 other patients, some of whom have had a relatively normal gamma globulin level and in others electrophoretic study was not made. The rather broad indications for the use of Omnadin were chronic repeated infections, particularly of the throat, lungs, and skin, which had not responded to the usual forms of conventional therapy. There are no figures available as to the exact results obtained, but a conservative estimate would show that 80 to 90 per cent of these patients had moderate improvement after receiving the lipoprotein.

Approximately 1500 injections of Omnadin have been given to date without any sign of local or systemic undesirable side effect.

CONCLUSION

The case studies summarized above suggest that there is a possible relationship between hypogammaglobulinemia states and repeated infections associated with a faulty mechanism for providing active immunity. The use of Omnadin for this condition appears to raise the gamma globulin fraction and possibly in doing so enhances the antigen-antibody response.

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Established 1844

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A.M.A. ADOPTS NATIONAL INTERPROFESSIONAL CODE FOR PHYSICIANS AND ATTORNEYS

The House of Delegates of the American Medical Association, at its Annual Meeting in San Francisco, in 1958, adopted a new national interprofessional code for physicians and attorneys. This code is the work of a joint national medical-legal liaison committee, the appointment of which was requested in 1957 by the president of the American Bar Association. It represents a year's effort in which conferences have been held and the code has been formulated after a thorough study of the different codes which have been adopted by bar associations and medical societies in various areas at the state and local levels. This code was intentionally prepared in general terms to permit its adaptation in the light of local conditions and circumstances.

The provisions of the code are not to be regarded as laws but suggested rules of conduct for the members of the two professions. It is still subject to the principles of medical and legal ethics and the rules of law prescribed for the individual conduct. The code supplies guides for physicians and attorneys in their interrelated practice in the area covered by its provisions.

Its purpose was stated as an effort to promote the public welfare, improve the practical working relationships of the two professions, and facilitate the administration of justice.

The relative importance of medical testimony has increased in litigation to the extent that now seven out of every ten cases involve medical testimony, and therefore, the presence of a physician. The duty of the physician is the same as that of any other person to respond to judicial process. It is also his duty to supply the medical facts relevant to a legal contest when they are required by the processes of justice. The code states that the attorney and physician should treat one another with dignity and respect in the courtroom; that the physician who testifies as to medical facts should never be an advocate, and should realize that his testimony is intended to enlighten rather than to impress or prejudice the court or the jury.

The various sections of the code cover such topics as medical reports, pretrial conferences, the issuing of subpoenas, and the prior notification to the physician by the attorney of the subpoena, arrangements for court appearances, and the proper conduct of the physician and of the attorney when the physician is a witness. Sections also give consideration to fees for

the services of the physician relative to the litigation, and payment of medical fees. The code advises that it be implemented at state and local levels for the purpose of improving the interprofessional relationships between the legal and medical professions. Provision is made for the handling of complaints on the part of either attorney or physician through appropriate channels, and deplores public airing of such complaints. The general trend of the code is to make the physician feel that it is his duty to cooperate in these legal processes, and he should recognize that delays in providing medical information may prejudice many aspects of the case and defeat the ends of justice.

The liaison committee of the two national associations also gave consideration to the encouragement of state and local medical-legal meetings, to medical professional liability problems, medical-legal forms, and the possibility of establishing medical-legal courses in law schools and medical schools.

The reluctance of the physician to go into court is understandable. He is concerned in his day to day work with the shifting effects of nature's forces. The operation of these processes of nature is only partly known to him. He is never in possession of all the facts of a case, and medicine is not an exact science. The knowledge that he may have is not readily reduced to writing, and even then only with considerable expense and difficulty. It is doubtful if there ever was a situation in which the physician as a witness had written records sufficient to answer all the questions of opposing attorneys.

The other principal reason for a physician wishing to avoid serving as a witness is the attitude frequently exhibited by attorneys in a manner expressed or implied that the physician should represent all knowledge or be master of the whole field of medicine. While this is obviously fantastic, the physician's limitations may be displayed in the courtroom in a light which is humiliating.

The code of ethics expressly makes the effort to protect the physician in these two fields, and states that the rules of evidence when adequately utilized by the court offer ample opportunity to test the qualifications, competence, and credibility of a medical witness.

The code is an excellent guide to improving interprofessional relationships between physicians and attorneys. All should read it and it will be helpful in proportion to the extent that it is implemented by local societies.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

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1958 - 1959

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

AIR FORCE GENERAL PRACTICE RESIDENCY PROGRAM

Approved residencies in general practice are available at the USAF Hospital, Maxwell Air Force Base, Alabama, and at certain civilian hospitals. This program provides one year of training in medicine, including pediatrics and psychiatry; and one year in surgery including traumatic surgery, fractures, obstetrics and gynecology.

It is anticipated that programs will be approved by July 1959, in additional hospitals at Andrews Air Force Base, Washington, D. C.; Keesler Air Force Base, Mississippi; and Wright-Patterson Air Force Base, Ohio. After completing residency training in general practice, medical officers may attend the primary course in aviation medicine,

if they so desire, and are physically qualified.

Physicians interested in an Air Force career in general practice may write directly to The Surgeon General, Headquarters, USAF, Washington 25, D. C.

BIBLIOGRAPHY AVAILABLE

The National Library of Medicine has compiled a lengthy bibliography on staphylococcal infection, which, it is hoped, may be of value to both private and public health physicians who are engaged in combatting the increased incidence of antibiotic resistant staphylococcal infection in the home, community and hospital. The bibliography will be sent at no cost on request to the National Library of Medicine, 7th St. and Independence Ave., S. W. Washington 25, D. C.

TENNESSEE VALLEY MEDICAL ASSEMBLY

The Read House, Chattanooga, Tennessee will be headquarters for the Tennessee Valley Medical Assembly to be held September 29-30. Participating in the program will be Drs. William R. Arrowsmith and Merrill O. Hines, of New Orleans. Dr. Arrowsmith will speak on "Present Management of the Lymphomas" and the subject to be presented by Dr. Hines is "Lesions of the Colon with a Negative Colon X-ray."

GASTROENTEROLOGICAL CONVENTION

The twenty-third annual convention of the American College of Gastroenterology will be held at the Jung Hotel in New Orleans, October 20-22. In addition to the many individual papers to be presented, there will be panel discussion on gastric carcinoma, steroids in gastroenterology and functional disturbances of the gastrointestinal tract. There will also be scientific as well as commercial exhibits and the sessions will be open to all physicians without charge.

On October 23-25, immediately following the convention, Dr. Owen H. Wangensteen of Minneapolis, Minnesota, and Dr. I. Snapper of Brooklyn, New York, will be the moderators of the annual course in postgraduate gastroenterology. The sessions will be held at the Jung Hotel and in the auditorium of the Louisiana State University School of Medicine. Attendance at the course will be limited to those who have registered in advance.

Copies of the program and further information concerning the postgraduate course may be obtained by writing to the American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

SYMPOSIUM ON CARCINOMA OF THE COLON AND RECTUM

The American Cancer Society will hold a scientific session at the Biltmore Hotel, New York City, on October 20-21, at which time there will be presentation of papers and panel discussions on the subject of cancer of the colon and rectum. Inquiries concerning this program should be addressed to the Director of Professional Education, American Cancer Society, Inc., 521 West 57th Street, New York 19, N. Y.

AMERICAN PUBLIC HEALTH ASSOCIATION

The eighty-sixth annual meeting of the American Public Health Association will be held in St. Louis, October 27-31. This meeting will feature reports on progress being made by voluntary and governmental agencies toward solving the major health problems facing mankind. These problems include ionizing radiation and atmospheric pollution, dental health, engineering and sanitation, epidemiology, food and nutrition, health officers, role of the public health laboratory, maternal and child health, mental health, occupational health, public health education, public health nursing, school health, and statistics marking the fiftieth anniversary of the Section on Statistics.

AMERICAN RHINOLOGIC SOCIETY MEETING

The American Rhinologic Society will hold its fourth annual meeting at the Palmer House, Chicago, October 17-18. Among the topics to be discussed will be pulmonary and nasal physiology, laboratory and clinical aspects of bone transplants, hump removal, roof repair, and nasal process corrections. The preliminary program includes a paper on "Maxillary and Premaxillary Approach to Septal Surgery," by Dr. Ralph H. Riggs, of Shreveport.

The Society will display many reprints, papers, slides, charts and other teaching and study material available to the profession upon request. Two new exhibits suitable for showing at state society and other professional meetings will also be presented.

There is no registration fee and all members of the medical profession are invited to attend as guests. For further information write to Dr. Robert M. Hansen, Secretary of the Society, 1735 North Wheeler Avenue, Portland 17, Oregon.

APPOINTMENT OF DR. FOX

Dr. John P. Fox, professor of epidemiology, Tulane School of Medicine, has been appointed Director of the Division of Graduate Public Health at Tulane. In this capacity he will become the administrator of Tulane's graduate training program in public health and tropical medicine. Dr. Fox has also been designated to become the first occupant of The William Hamilton Watkins chair in epidemiology established by Mr. and Mrs. Charles E. Inbusch of Milwaukee, Wisconsin. Tulane's degree-granting program in public health and tropical medicine, established in 1947, is one of twelve in North America and is participated in by students from all parts of the United States as well as the world.

NEWS FROM OCHSNER FOUNDATION HOSPITAL, NEW ORLEANS

Dr. Patrick H. Hanley, New Orleans, was elected Vice-president of the American Proctologic Society at its meeting, July 1-3, in Los Angeles.

Dr. Paul T. DeCamp, New Orleans, was elected Secretary of the North American Chapter, International Cardiovascular Society at its meeting, June 21, in San Francisco.

AMERICAN ASSOCIATION OF MEDICAL ASSISTANTS

All medical assistants are cordially invited to attend the Second Annual Meeting of the American Association of Medical Assistants, October 31, November 1 and 2, 1958, Palmer House, Chicago, Illinois. We urge each physician to call this meeting to the attention of his assistants. Expenses of attendance are tax deductible.

Friday, October 31, the morning program will include an Advisors Symposium: Dr. Leo J. Starry, moderator; "The Value of This Association to Doctors," Dr. Fred Sternagel; "Office Assistants and Blue Shield," Dr. Robert L. Schaeffer; "Professional Ethics," Dr. Frederick H. Falls; "Jobs Delegated to Medical Assistants," Dr. Murray C. Eddy.

On Friday afternoon, there will be a tour of the American Medical Association Building, with a program for which the speakers, films, and exhibits will be furnished by the AMA.

At dinner, Friday night, in the Red Lacquer Room, Dr. Morris B. Fishbein will be the principal speaker.

On Saturday morning, the meeting will be divided into three sections: Business, Medical, Technical. The three meeting rooms will be fully equipped with the latest office machines, laboratory equipment, and office furniture. Medical assistants may choose those subjects in which their chief interests lie from the following:

Business: Insurance, Office Machines, Credit, Records, Telephone Techniques, Banking.

Medical: Emergencies, Medicolegal Problems, Case Histories, Good Housekeeping and Personal Grooming, Civil Defense and How We Can Help, Public Relations.

Technical: New Laboratory Procedures, New Developments in X-ray, Inter Office Professional Ethics, ECG and Ultrasonic and Diathermy, Aseptic Techniques, What is Good Practice for the Physician and Medical Assistants by Dr. Raleigh Oldfield, President Illinois Medical Society.

At the Saturday afternoon session the speakers will be: Harold Scherer, Business Manager, Monroe Clinic, Monroe, Wis., "Go and Do Likewise" and I. D. Harvey, Divisional Sales Manager, Abbott Laboratories, "Is The Welcome Mat Out."

In the evening there will be a cocktail party followed by a banquet in the Grand Ball Room, with installation of officers, presided over by Mrs. Mary Kinn, president, with Dr. Robert J. Samp, Director of Tumor Clinic, University Hospitals, Madison, Wis., as the master of ceremonies.

Sunday morning there will be a Brunch with farewell from Chicago and invitation to Philadelphia in 1959.

Hotel reservations should be made directly with the Palmer House, Chicago, Illinois. Singles $8 to $16; doubles $14.50 to $20; twins $15.50 to $22.

Reservation fee of $18 for the meeting includes transportation to and from the AMA building, dinner Friday night in the Red Lacquer Room, Saturday's cocktail party and banquet in the Grand Ball Room, and Sunday morning Brunch.

Hallie Cummins, RRL
Chairman, Public Relations Committee
American Association of Medical Assistants

CLINICAL CONFERENCE ON CANCER CHEMOTHERAPY

November 14 and 15, 1958

The third annual clinical conference for Texas Physicians will be held Friday, November 14, and Saturday, November 15, 1958, at The University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston.

Registration: 8:30-9:00 A.M., Friday, November 14, at the auditorium of M. D. Anderson Hospital. Pre-registration would be appreciated. (Since the Rice-Texas A. & M. football game will be played at Rice Stadium in Houston, Saturday, November 15th, it is recommended that hotel reservations be made well in advance of the Clinical Conference. If interested in attending the football game, please contact the Athletic Office, Rice Institute, Houston.)

Hours: Members of the Academy of General Practice desiring credit for attendance at this conference must register in advance with The University of Texas Postgraduate School of Medicine, Jesse Jones Library Building, Houston, Texas. Eight hours will be certified for attendance of this conference. A $5.00 registrar's fee must accompany the registration for the Academy. Make checks payable to The University of Texas.

SOCIAL SECURITY FOOTNOTES

SOCIAL SECURITY SAYS: "It is common knowledge that most of us because of living costs, social standards, and economic misfortunes, do not set aside enough money or other assets during our working years to provide adequately for ourselves or our families when earned income is cut off by disability, old age, or death."

In other words: Social Security believes that "most of us" must depend upon the government in our "hour of need."

SOCIAL SECURITY SAYS: "Your social security taxes pay for these nine programs:

Social Insurance
- (a) Unemployment insurance
- (b) Old Age and Survivors Insurance

Public assistance to the needy
- (a) Old-age assistance
- (b) Aid to the needy blind
- (c) Aid to dependent children
- (d) Aid to the permanently and totally disabled

Children's services:
- (a) Maternal and child-health services
- (b) Services for crippled children
- (c) Child-welfare services

In other words: In spite of the fact that most of these represent federal grants to state aid, this Social Security program is being sold to you and me as "contributory social insurance."

TULANE STUDENT AWARDED SCHOLARSHIP

Miss Donna N. Kern of 1315 Gravier Street, New Orleans 12, Louisiana, now in her third year at Tulane University School of Medicine, New Orleans, has been awarded a $500 scholarship for research and clinical training this summer in the field of the allergic diseases.

Miss Kern will work on the histochemical demonstration of antiplatelet antibody through the use of fluoroscein-labeled Coombs' Serum, under the direction of Dr. Vincent J. Derbes, Professor of Medicine and Director of the Division of Allergy and Dermatology, Tulane University School of Medicine.

CARIBBEAN MEDICAL CRUISE

The University of Texas, Postgraduate School of Medicine announces its Second Medical Cruise to the Caribbean. Five outstanding lecturers experienced in teaching postgraduate courses have been obtained for the cruise representing fields of medicine, radiology, surgery, obstetrics and gynecology and pediatrics. The cruise (May 5 to 18, 1959) will sail from New Orleans on the M.S. STELLA POLARIS. Twenty-five hours of scheduled teaching will be offered. Inquiries should be directed to The University of Texas, Postgraduate School of Medicine, Houston 25, Texas.

ANNUAL MEETING THE TRI-STATE MEDICAL SOCIETY

The 1958 annual meeting of The Tri-State Medical Society will be held September 10 and 11, headquarters at the Confederate Memorial Hospital, Shreveport, Louisiana. The program is as follows:

WEDNESDAY - SEPTEMBER 10, 1958

8:30- 9:00	Registration — $10 for non-members, members, free
	Dr. Jack Guthrie—Presiding
9:00- 9:40	"Histoplasmosis"—Dr. Harris D. Riley, Jr., Professor of Pediatrics—Oklahoma University Medical School
9:40-10:20	"Allergic Conditions in Children"—Dr. Jack Anderson, Associate Pofessor of E.N.T., Louisiana State University Medical School
10:20-10:40	View Exhibits
10:40-11:20	"The Surgical Complications of Pregnancy"—Dr. Isidore Dyer, Professor of Obstetrics, Tulane University Med. School
11:20-11:30	View Exhibits
11:30- 1:00	Clinics and Case Presentations in Pediatrics, E.N.T.
1:00- 2:00	Luncheon—Free for Registrants
	Dr. B. H. Joslin—Presiding
2:00- 2:45	"The Not So Simple Colles Fractures"—Dr. Jack Wickstrom, Professor of Orthopedics, Tulane University Medical School
2:45- 3:00	View Exhibits
3:00- 4:00	Clinics and Case Presentation in Orthopedics and Obstetrics
6:30- 8:00	Cocktail Hour—
8PM-12PM	Social Hours at East Ridge Country Club—Dinner and Dancing

THURSDAY - SEPTEMBER 11, 1958

	Dr. R. B. Langford—Presiding
9:00- 9:40	"Cardiology"—Dr. Don Chapman, Associate Professor of Medicine, Baylor University Medical School
9:40-10:20	"Surgical Treatment of Cardio-Vascular Disease" Dr. Denton Cooley, Associate Professor of Surgery, Baylor University Medical School
10:20-10:40	View Exhibits
10:40-11:35	"Benign Disorders of Peripheral Nerves"—Dr. Bertrum E. Sprofkin, Associate Professor of Neurology, Vanderbilt University Medical School
11:35- 1:00	Clinics and Case Presentations in Medicine and Surgery
1:00- 2:00	Luncheon—Free for Registrants
2:00- 3:00	C P C—Drs. Chapmen, Cooley, and W. R. Matthews
3:00- 3:30	Business Meeting
3:30	Adjourn
3:30	Dove Hunt for all Interested

WOMEN'S ACTIVITIES

Wednesday, September 10, 1958

10:00- 1:00	Swimming Party for Ladies—Home of Dr. A. J. Nicholas 1820 Audubon Place

Doctors Note: **Please bring this to the attention of your wife.**

Please send your registration fee of $10 to Dr. J. C. Sanders, Treasurer—106 East Kings Hwy., Shreveport, Louisiana

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

Membership of the Orleans Parish Woman's Auxiliary was jubilant when news was received from Mrs. F. W. Raggio, Jr., Essay Contest Chairman for the State, that Bonnie Sue Harris of New Orleans placed third in the national competition.

The top winners were: Herschel Mills of Angleton, Texas, first, and Joan Legoski of Wayne, Wyoming, second.

The Essay Contest is sponsored nationally by the Association of American Physicians and Surgeons.

IBERVILLE PARISH

The final meeting of the season of the Future Nurses Club was held in June at the home of Mrs. Frank O. Tomeny in White Castle.

An award is presented annually to the outstanding senior member of the club by the Woman's Auxiliary to the Iberville Parish Medical Society. The recipient this year was Sharon Blanchard who plans to enter training at Our Lady of the Lake School of Nursing in Baton Rouge.

Mrs. Branch J. Aymond,
Press and Publicity.

—o—

BOOK REVIEWS

Battle for the Mind; by William Sargent, Garden City, N. Y., Doubleday & Company, Inc. 1957. pp 263. Price $4.50.

This volume is concerned with the determination of the physiological mechanism involved in the fixing or destroying of belief in the human mind. In his study of the subject, the author attempts to show that consciously or unconsciously, a common physiological *modus operandi* is employed by politicians, psychiatrists, evangelists and even, in early times, by medicine men, the technique being modified by all kinds of people to suit the demands of the day and place. The author believes that an analysis of the method employed in such an indoctrination leads to future promise in the treatment of the mentally ill.

Dr. Sargent is at present in charge of the Department of Psychological Medicine at one of England's oldest and best-known medical schools. He was for many years on the staff of Maudsley Hospital in London, England's post-graduate psychiatric teaching and research center. He is president of the Section on Psychiatry of the Royal Society of Medicine and Registrar of the Royal Medico-Psychological Association. He has visited or worked in the United States on four different occasions in the past eighteen years.

MARY LOUISE MARSHALL

Halsted of Johns Hopkins, the Man and his Men; by Samuel James Crowe, M. D. Springfield, Illinois, Charles C Thomas, 1957, pp. 247, illus., Price $5.00.

This book, written at the request of the Department of Surgery, Johns Hopkins, is a history of the establishment and development of this department. Dr. Crowe was personally associated with all the men of whom he writes and gives here the details which make them live for the reader. Chosen by Dr. Halsted to work with him were Drs. Harvey Cushing, William Stevenson Baer, Walter Edward Dandy, Frederick Henry Baetjer, James Farnandis Mitchell, Samuel James Crowe and Hugh Hampton Young. Dr. Halsted is credited with establishing Residency training in Surgery and it is interesting to note that of 17 resident surgeons serving under him, seven became Professors of Surgery, one a Clinical Professor, three Associate Professors, one an Instructor and one Surgeon in Chief of a large hospital. Of the 55 assistant resident surgeons, 15 became Professors, five Clinical Professors, five Associate Professors, three Assistant Professors, five Assistant Clinical Professors and eight Instructors in Surgery. In a total of 238 surgeons trained under Halsted, 99 went into private practice and 139 into full-time University work. This book is recommended to every surgeon, every medical library and to those interested in medical education and the history of medicine.

(Sgd.) MARY LOUISE MARSHALL

PUBLICATIONS RECEIVED

Grune & Stratton, Inc., New York: Alcoholism, by Arnold Z. Preffer, M.D. Progress in Cardiovascular Diseases (Vol. 1), edited by Charles Friedberg, M.D. Developmental Potential of Preschool Children, by Else Haeussermann.

Paul B. Hoeber, Inc., New York: Clinical Obstetrics and Gynecology (Vol. 1 & 2), Toxemias of Pregnancy, edited by Louis M. Hellman, M.D. and Fibromyomas of the Uterus, edited by Robert A. Kimbrough, M.D. Milestones in Modern Surgery, edited by Alfred Hurwitz, M.D. and George A. Degenshein, M.D.; foreword by J. Englebert Dunphy, M.D.

Johnson & Johnson, New Brunswick, N.J.: Therapeutic Uses of Adhesive Tape.

W. B. Saunders Company, Philadelphia: Diseases of the Esophagus, by J. Terracol and Richard H. Sweet.

Charles C Thomas, Springfield, Ill.: A Primer in Medical Technology, by Paul M. Kraemer.

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Relieves Distress in smooth muscle spasm

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— for positive relief of cholinergic spasm. — a new and safer agent for normalizing emotions.



PRO-BANTHINE WITH DARTAL offers you a new, specific and reliable control of visceral motor disorders, especially when these disorders are induced or aggravated by psychic tensions or anxiety.

Pro-Banthine has won wide clinical acceptance as the most effective drug for controlling gastrointestinal hypermotility and hypersecretion.

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The combination of each drug in fully effective doses in Pro-Banthine with Dartal gives a new means of approach to the medical management of functional gastrointestinal disorders mediated by the parasympathetic nervous system.

Specific Clinical Applications: Functional gastrointestinal disturbances, gastritis, pylorospasm, peptic ulcer, spastic colon (irritable bowel), biliary dyskinesia.

Dosage: One tablet three times a day.

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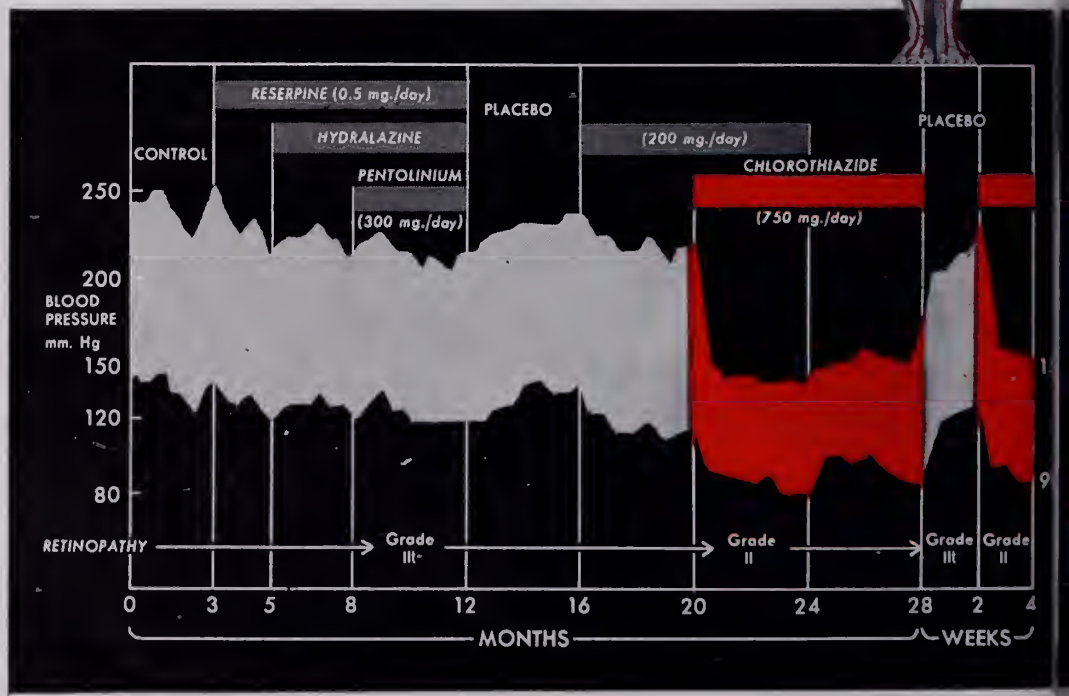
Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

"Chlorothiazide added to other antihypertensive drugs reduced the blood pressure in 19 of 23 hypertensive patients." "All of 11 hypertension subjects in whom splanchnicectomy had been performed had a striking blood pressure response to oral administration of chlorothiazide." ". . . it is not hypotensive in normotensive patients with congestive heart failure, in whom it is markedly diuretic; it is hypotensive in both compensated and decompensated hypertensive patients (in the former without congestive heart failure, it is not markedly diuretic, whereas in the latter in congestive heart failure, it is markedly diuretic). . . ."



Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

"Chlorothiazide (maintenance dose, 0.5 Gm. twice daily) added to the regimen of 73 ambulatory hypertensive patients who were receiving other antihypertensive drugs as well caused an additional reduction [16%] of blood pressure." "The advantages of chlorothiazide were (1) significant antihypertensive effect in a high percentage of patients, particularly when combined with other agents, (2) absence of significant side effects or toxicity in the dosages used, (3) absence of tolerance (at least thus far), and (4) effectiveness with simple 'rule of thumb' oral dosage schedules."



In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension," Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8: 1, September, 1957.

MERCK SHARP & DOHME Division of MERCK & CO., Inc., Philadelphia 1, Pa.

e effectiveness of 'DIURIL'
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Hypertension

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1 **INITIATE THERAPY WITH 'DIURIL'.** 'DIURIL' is given in a dosage range of from 250 mg. twice a day to 500 mg. three times a day.

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Howard M. Burkett, M. D., Associate Psychiatrist
James K. Peden, M. D., Associate Psychiatrist
Ward G. Dixon, M. D., Associate Psychiatrist
Jerry M. Lewis, Jr., M. D., Associate Psychiatrist
C. L. Jackson, M. D., Associate Psychiatrist
LeeOwen S. Buford, M. D., Associate Psychiatrist
Albert F. Riedel, Jr., M. D., Resident Psychiatrist
Belvin A. Simmons, M. D., Resident Psychiatrist
E. Clay Griffith, M. D., Resident Psychiatrist

Frances Campbell, R.N., B.S., Director of Nurses
Donald Bertoch, M.S., Clinical Psychologist
Charles J. Black, M.A., Clinical Psychologist
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1. Russek, H. I.: Postgrad. Med. *19*:562 (June) 1956.

Dosage and Supplied: Begin with 1 to 2 yellow CARTRAX "10" tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. When indicated this may be increased by switching to pink CARTRAX "20" tablets (20 mg. PETN plus 10 mg. ATARAX.) For convenience, write "CARTRAX 10" or "CARTRAX 20." In bottles of 100.

CARTRAX should be taken 30 to 60 minutes *before* meals, on a continuous dosage schedule. Use PETN preparations with caution in glaucoma.

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(1) Hagedorn, A. B.: Proc. Staff Meet. Mayo Clin. 32:705 (Dec. 11) 1957.
(2) Best, W. R.; Louis, J., and Limarzi, L. R.: M. Clin. North America (Jan.) 1958, p. 3.

Supplied: 2-cc. and 5-cc. ampuls, boxes of 4. Physician's directions in every box. There are 50 mg. of elemental iron per cc. Request literature NDA 17, Imferon.

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1. Thomas, J. W.: Ann. Allergy *16*:128, 1958

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CAPSULES (black and pink)
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For patients susceptible to monilial superinfection.

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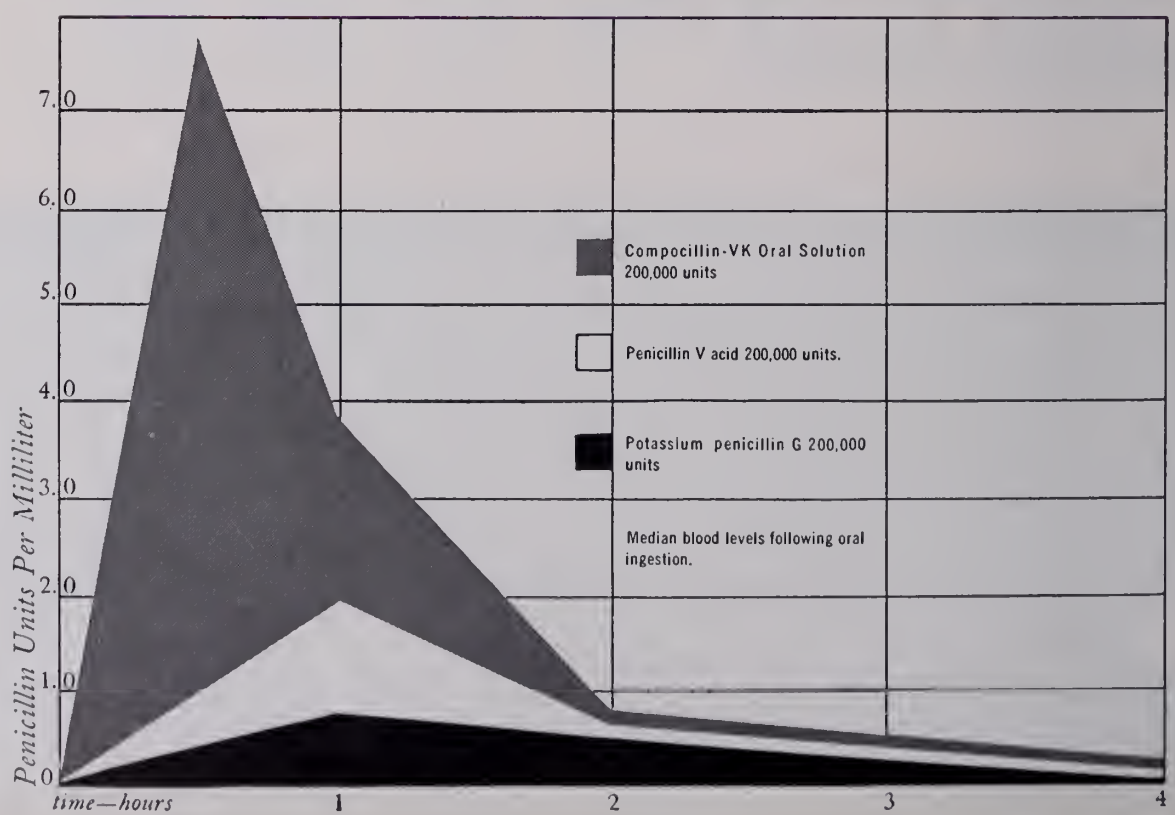
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EFERENCES: 1. Carlozzi, M.: Ant. Med. & Clin. Therapy 5:146 (Feb.) 1958. 2. Welch, H.; Wright, W. W., and Staffa, A. W.: Ant. Med. & Clin. Therapy 52 (Jan.) 1958. 3. Walch, E.: Dent. Med. Wschr. (April) 1956. 4. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 5. Nathan, L. A.: Arch. Pediat. 75:251 une) 1958. 6. Cornbleet, T.; Chesrow, E., and Barsky, S.: Ant. Med. & Clin. Therapy 5:328 (May) 1958. 7. Stone, M. L.; Sedlis, A., Bamford, J., and radley, W.: Ant. Med. & Clin. Therapy 5:322 (May) 1958. 8. Harris, H.: Clin. Rev. 1:15 (July) 1958.

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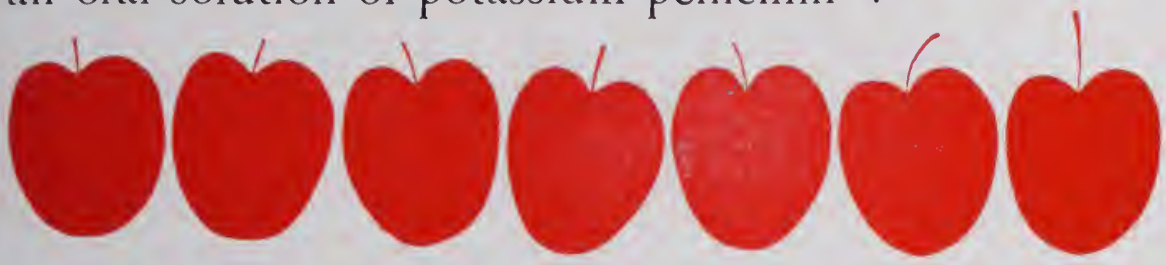
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...in Skin Diseases: In a study of 26 patients with severe dermatoses, ARISTOCORT was proved to have potent anti-inflammatory and antipruritic properties, even at a dosage only ⅔ that of prednisone[1]... Striking affinity for skin and tremendous potency in controlling skin disease, including 50 cases of psoriasis, of which over 60% were reported as *markedly improved*[2]...absence of serious side effects specifically noted.[1,2,3]

...in Rheumatoid Arthritis: Impressive therapeutic effect in most cases of a group of 89 patients[4]...6 mg. of ARISTOCORT corresponded in effect to 10 mg. of prednisone daily (in addition, gastric ulcer which developed during prednisone therapy in 2 cases disappeared during ARISTOCORT therapy).[5]

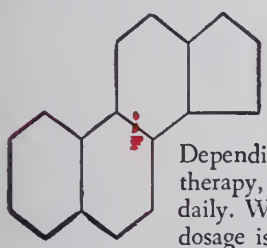
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3. Sherwood, A., and Cooke, R. A.: Personal Communication.
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ocort®

Triamcinolone LEDERLE

...in Respiratory Allergies: "Good to excellent" results in 29 of 30 patients with chronic intractable bronchial asthma at an average daily dosage of only 7 mg.[6]... Average dosage of 6 mg. daily to control asthma and 2 to 6 mg. to control allergic rhinitis in a group of 42 patients, with an actual reduction of blood pressure in 12 of these.[7]

...in Other Conditions: Two failures, 4 partial remissions and 8 cases with complete disappearance of abnormal chemical findings lead to characterization of ARISTOCORT as possibly the most desirable steroid to date in treatment of the nephrotic syndrome.[8,9]... Prompt decrease in the cyanosis and dyspnea of pulmonary emphysema and fibrosis, with marked improvement in patients refractory to prednisone.[10,11,12]... Favorable response reported for 25 of 28 cases of disseminated lupus erythematosus.[13]



Depending on the acuteness and severity of the disease under therapy, the initial dosage of ARISTOCORT is usually from 8 to 20 mg. daily. When acute manifestations have subsided, maintenance dosage is arrived at gradually, usually by reducing the total daily dosage 2 mg. every 3 days until the smallest dosage has been reached which will suppress symptoms.

Comparative studies of patients changed to ARISTOCORT from prednisone indicate a dosage of ARISTOCORT lower by about ⅓ in rheumatoid arthritis, by ⅓ in allergic rhinitis and bronchial asthma, and by ⅓ to ½ in inflammatory and allergic skin diseases. With ARISTOCORT, no precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

ARISTOCORT is available in 2 mg. scored tablets (pink), bottles of 30; and 4 mg. scored tablets (white), bottles of 30 and 100.



Hospital practice of infant feeding

Standard one-formula mixture

Normal infant nutrition requires approximately 50 calories per pound of weight. Caloric distribution should be about 15% from protein, 50% from carbohydrates and 35% from fat as formulated for the mixtures in the tables below.

For young infants, a favorable hospital formula consists of a milk and Karo Syrup mixture, isocaloric with human milk, e.g. 20 calories per ounce.

WHOLE MILK FORMULA

FORMULA	OZ.	TOTAL CALORIES	CARB. CAL.	FAT CAL.	PROT. CAL.
Whole milk	24	480	5%	36%	14%
Water	22	—	—	—	—
Karo Syrup	1½	180	45%	—	—

EVAPORATED MILK FORMULA

FORMULA	OZ.	TOTAL CALORIES	CARB. CAL.	FAT CAL.	PROT. CAL.
Evaporated milk	11	484	5%	36%	14%
Water	22	—	—	—	—
Karo Syrup	1½	180	45%	—	—

An infant will usually take 2 to 3 ounces more than his *age in months* at 3 to 4 hour intervals to satisfy his appetite and nutritional needs. It is psychologically unwise to force prescribed amounts. Normally, the gain in weight of 6 to 8 ounces a week during the earlier months gradually diminishes to 3 to 4 ounces a week by the end of the first year. The standard one-formula mixture not only provides adequate nutrition when vitamin supplements are added; it also provides educational opportunities to prevent feeding problems.

ADVANTAGES OF KARO® SYRUP IN INFANT FEEDING



Composition: Karo Syrup is a superior dextrin-maltose-dextrose mixture because the dextrins are nonfermentable and the maltose is rapidly transformed into dextrose which requires no digestion.

Concentration: Volume for volume Karo Syrup furnishes twice as many calories as similar milk modifiers in powdered form.

Purity: Karo Syrup is processed at sterilizing temperatures, sealed for complete hygienic protection and devoid of pathogenic organisms.

Low Cost: Karo Syrup costs 1/5 as much as expensive milk modifiers and is available at all food stores.

Free to Physicians—Book of Infant Feeding Formulas with convenient schedule pads. Write: Karo Infant Feeding Guide, Box 280, New York 46, N. Y.

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PHENAPHEN NO. 2
Phenaphen with Codeine Phosphate ¼ gr. (16.2 mg.)

PHENAPHEN NO. 3
Phenaphen with Codeine Phosphate ½ gr. (32.4 mg.)

PHENAPHEN NO. 4
Phenaphen with Codeine Phosphate 1 gr. (64.8 mg.)

Also —

PHENAPHEN In each capsule

Acetylsalicylic Acid 2½ gr. . (162 mg.)
Phenacetin 3 gr. . . . . (194 mg.)
Phenobarbital ¼ gr. . . . . (16.2 mg.)
Hyoscyamine sulfate . . . . . (0.031 mg.)

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Robins

Robins

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Faster rehabilitation in

Joint inflammation and muscle spasm are the two elements most responsible for disability in rheumatic-arthritic disorders—and MEPROLONE is the one agent that treats both.

MEPROLONE suppresses the inflammatory process and simultaneously relieves aching and stiffness caused by muscle spasm, to provide greater therapeutic benefits and a shorter rehabilitation period than any single antirheumatic-antiarthritic agent.

MEPROLONE-2 is indicated in cases of severe involvement, yet often leads to a reduction of steroid dosage because of its muscle-relaxant action. When involvement is only moderately severe or mild, MEPROLONE-1 may be indicated.

SUPPLIED: Multiple Compressed Tablets in three formulas: MEPROLONE-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 100). MEPROLONE-1 supplies 1.0 mg. prednisolone in the same formula as MEPROLONE-2 (bottles of 100). MEPROLONE-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 30).

a

Because muscles move joints, both muscle spasm and joint inflammation must be considered in treating the rheumatic-arthritic patient . . .



MERCK SHARP & DOHME Division of MERCK & CO., INC., Philadelphia 1, Pa.

Rheumatoid Arthritis

multiple compressed tablets

MEPROLONE®

THE FIRST MEPRO BAMATE-PREDNISOLONE THERAPY



b

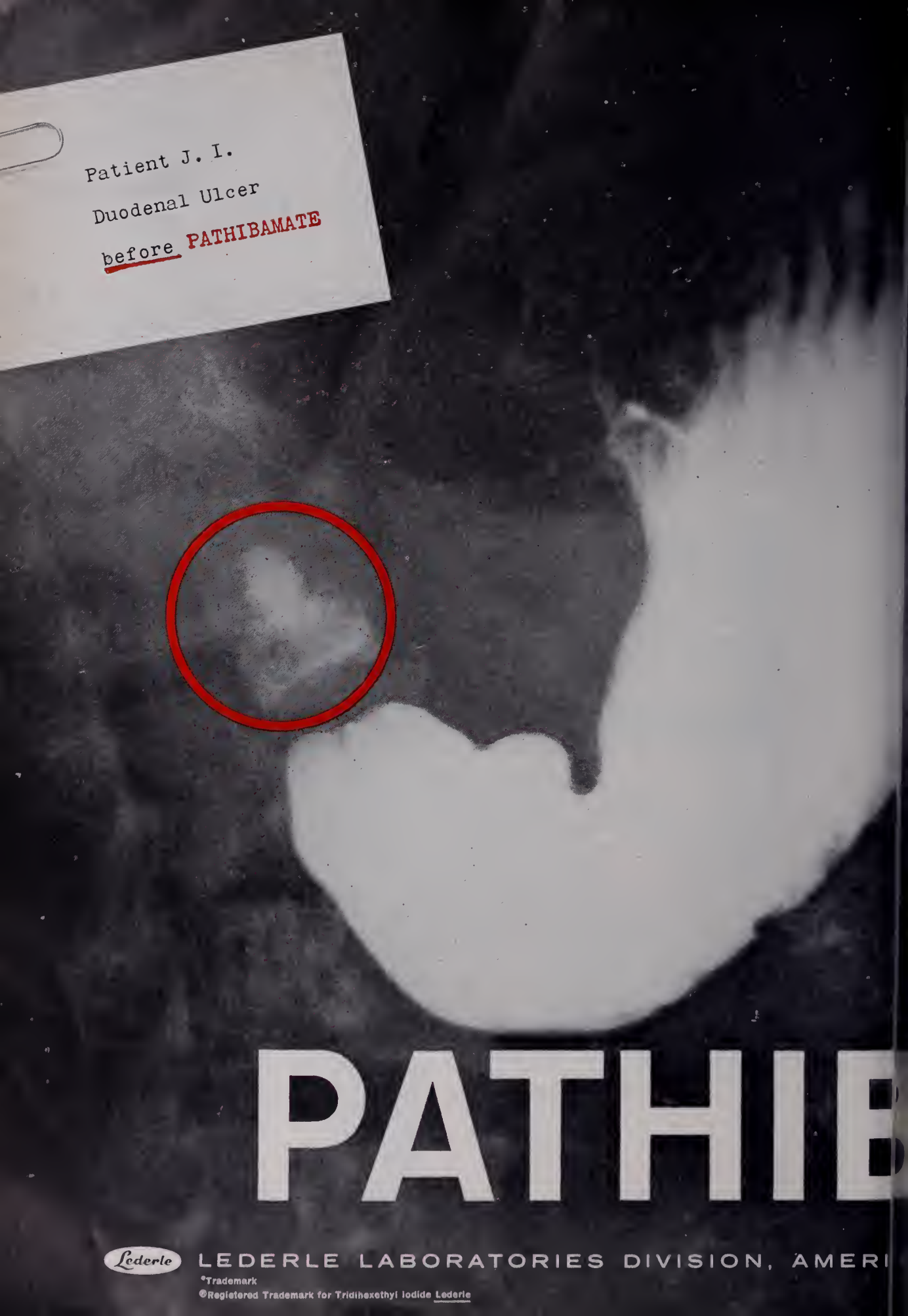
MEPROLONE is the one antirheumatic-antiarthritic that exerts a simultaneous action to relax muscles in spasm and to suppress joint inflammation . . .



c

Therefore, MEPROLONE does more than any single agent to help the physician shorten the time between disability and employability.

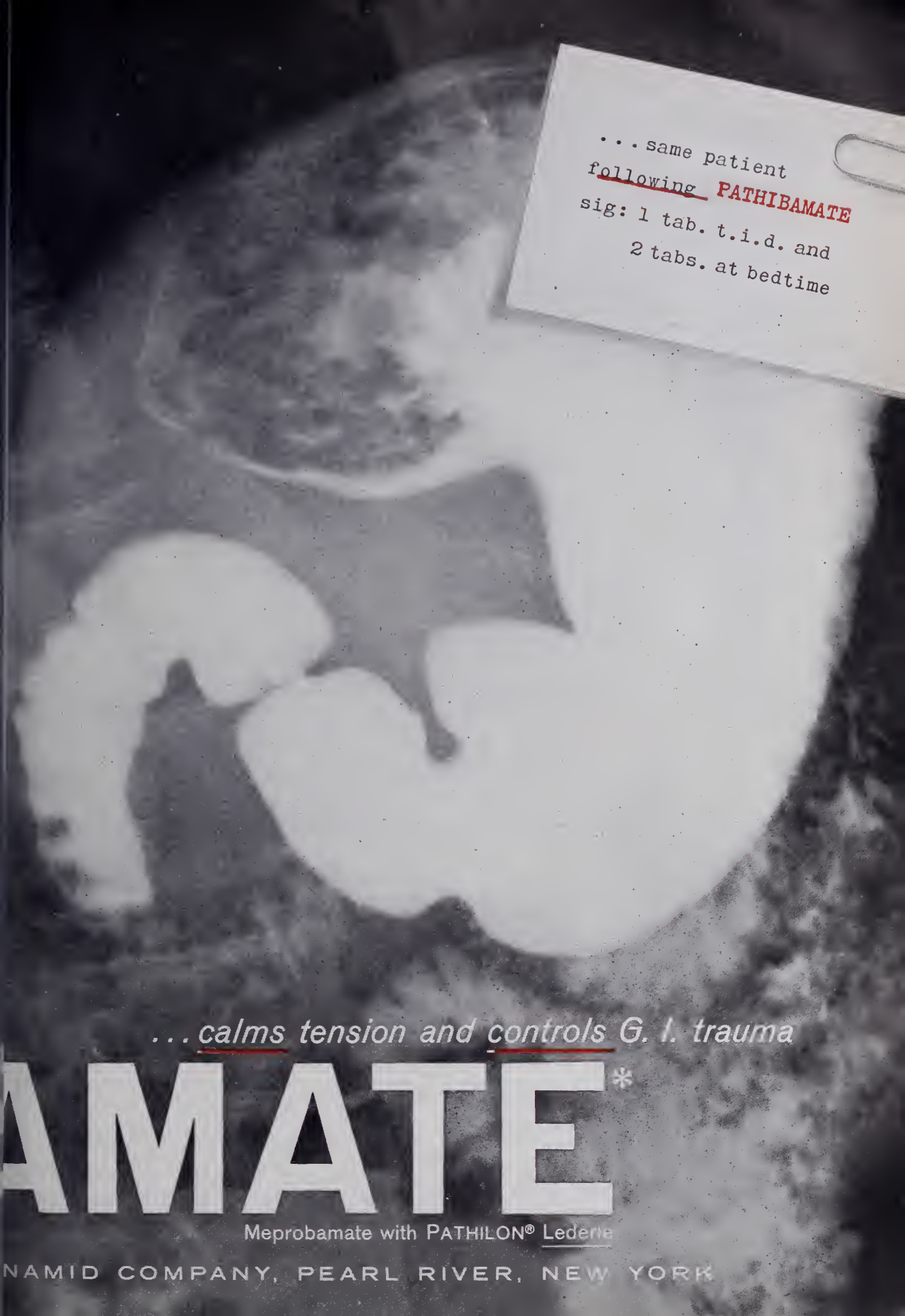
MEPROLONE is a trade-mark of Merck & Co., Inc.



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. . . calms tension and controls G. I. trauma

AMATE*

Meprobamate with PATHILON® Lederle

NAMID COMPANY, PEARL RIVER, NEW YORK



"No patient failed to improve."[1]

pHisoHex washing added to standard treatment in acne produced results that "...far excelled... results with the many measures usually advocated."[1]

pHisoHex maintains normal skin pH, cleans and degerms better than soap. In acne, it removes oil and virtually all skin bacteria *without scrubbing.*

For best results—four to six washings a day with pHisoHex will keep the acne area "surgically" clean.

1. Hodges, F. T.: *GP* 14:86, Nov., 1956.

pHisoHex®

Sudsing nonalkaline antibacterial detergent—nonirritating, hypoallergenic. Contains 3% hexachlorophene.

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Panalba*
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n 30 common pathogens,
en including
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If
Monilial
overgrowth
is a factor

Achrostatin* V

TETRACYCLINE (PHOSPHATE B[illegible]) AND NYSTATIN

SUPPLIED:
CAPSULES contain 250 mg. tetracycline HCl equivalent (phosphate-buffered) and 250,000 units Nystatin ORAL SUSPENSION (cherry-mint flavored) Each 5 cc. teaspoonful contains 125 mg. tetracycline HCl equivalent (phosphate-buffered) and 125,000 units Nystatin.

DOSAGE:
Basic oral dosage (6-7 mg per lb. body weight per day) in the average adult is 4 capsules or 8 tsp. of ACHROSTATIN V per day, equivalent to 1 Gm. of ACHROMYCIN V.

*Trademark Reg U[illegible] Pat Off.

Combines ACHROMYCIN V with NYSTATIN

ACHROSTATIN V combines ACHROMYCIN V, the new rapid-acting oral form of ACHROMYCIN Tetracycline... noted for its outstanding effectiveness against more than 50 different infections, and NYSTATIN... the antifungal specific. ACHROSTATIN V provides particularly effective therapy for those patients who are prone to monilial overgrowth during a protracted course of antibiotic treatment.

LEDERLE LABORATORIES Division, AMERICAN CYANAMID COMPANY, Pearl River, New York

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in all diarrheas

CREMOMYCIN®

SULFASUXIDINE®—PECTIN—KAOLIN—NEOMYCIN SUSPENSION

regardless of etiology

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NEW styling for known standard

To diabetics and their physicians, CLINITEST means rapid *and* reliable urine-sugar testing—standardized for accurate results every time. And now, the new streamlined model (No. 2105) gives your diabetics this standard test in the best looking, most efficient form.

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- **functional:** full-view test tube always in place
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Model No. 2105 CLINITEST Urine-Sugar Analysis Set contains everything needed for accurate standardized testing: bottle of 36 CLINITEST Reagent Tablets, test tube, unbreakable dropper. color scale—instruction sheet, analysis record, diabetic's identification card



MODEL NO. 2105

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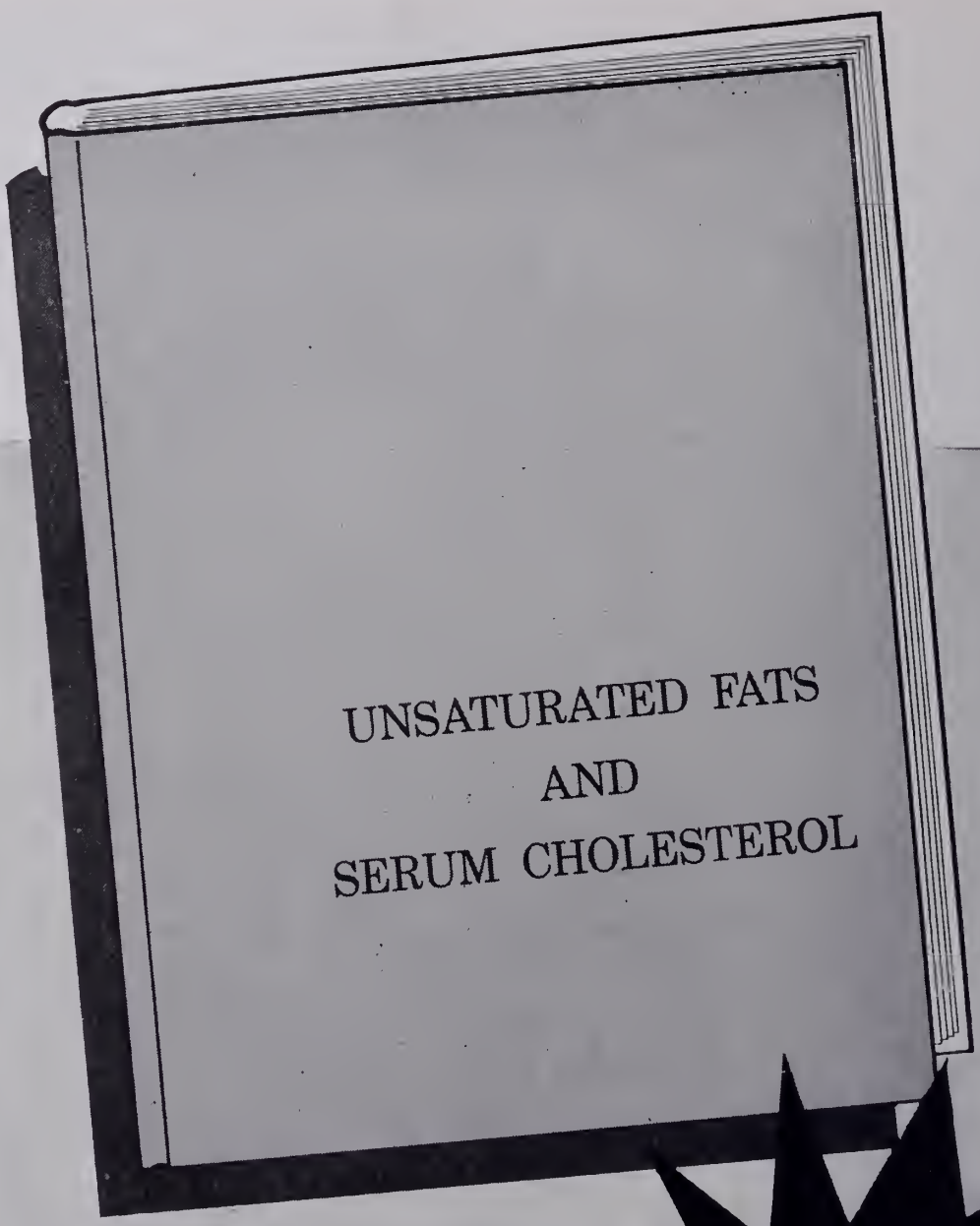
Bed of Digitalis purpurea
with Campanula (Canterbury Bells) in foreground

Not far from here are manufactured
from the powdered leaf
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0.1 Gram (1½ grains) or 1 U.S.P. Digitalis Unit.
They are physiologically standardized,
with an expiration date on each package.
Being Digitalis in its completeness,
this preparation comprises the
entire therapeutic value of the drug.
It provides the physician with a safe and effective
means of digitalizing the cardiac patient
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"Unsaturated Fats and Serum Cholesterol"

...a review of the latest Concepts and Results of Current Research

Now ready for distribution to physicians as a special service by Corn Products Refining Company, this book supplements and supersedes the 1957 monograph "Vegetable Oils in Nutrition" and provides a broader coverage of this important subject.

This new book is the most up-to-date annotated bibliography on current research pertaining to:

1. The origin and behavior of cholesterol in the human body;
2. The effect of different dietary fats on serum cholesterol levels;
3. The nature of the active components in vegetable oils;
4. Suggestions for practical diets.

As a regular part of daily meals Mazola® Corn Oil can be used for control of serum cholesterol levels

MAZOLA CORN OIL, a natural food and a superior salad and cooking oil, used as part of the daily diet, can be helpful in the control of serum cholesterol levels.

Extensive clinical findings now show that serum cholesterol levels tend to be lower when an adequate amount of MAZOLA CORN OIL is part of the daily meals... high levels are lowered, normal levels remain normal.

MAZOLA...the only readily available vegetable oil made from golden corn oil... is rich in the important unsaturated fatty acids. 85% of all the fatty acids in MAZOLA are unsaturated and 56% of the fatty acid content is linoleic.

As a result, MAZOLA CORN OIL is unusually well suited for helping achieve dietary adjustments commonly recommended by authorities on nutrition—that from one-third to one-half of the total fat in-take should be of the unsaturated type when serum cholesterol control is a problem.

Being a natural food, MAZOLA CORN OIL can be included as part of the every day meals—simply and without disturbing the patient's usual eating habits.

Each Tablespoonful of Mazola* Corn Oil Provides Approximafely 126 Calories—and:

Linoleic Acid	7.4 Gm.
Sitosterols	130 mg.
Natural Tocopherols	15 mg.

Typical Amounts Per Diet

For a 3600 calorie diet	3 tablespoonsful
For a 3000 calorie dlet	2.5 tablespoonsful
For a 2000 calorie diet	1.5 tablespoonsful

*Reg. U. S. Pat. Off.



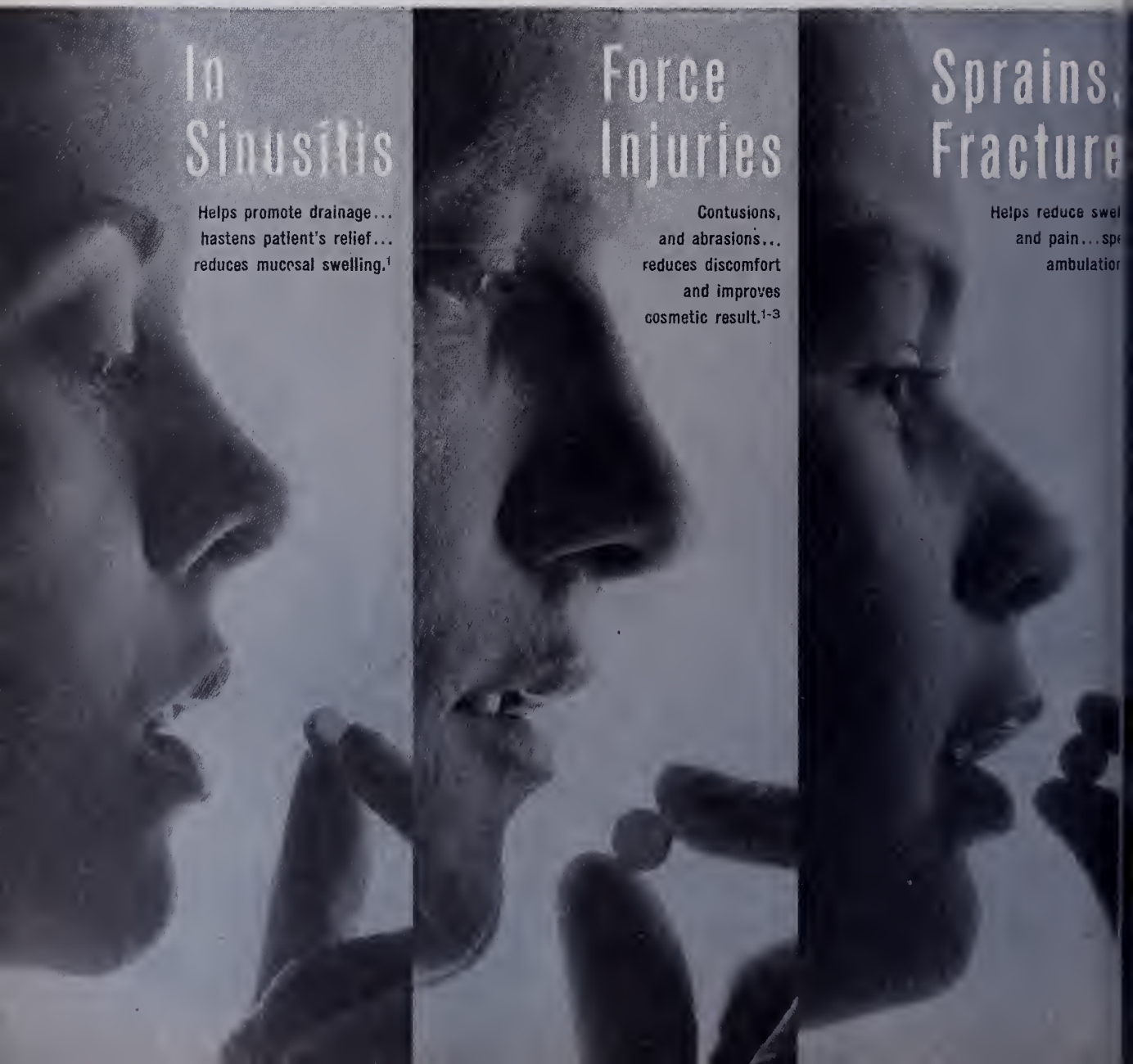
CORN PRODUCTS REFINING COMPANY

VARIDASE* BUCCAL TABLETS

Streptokinase-Streptodornase Lederle

Controls Inflammation and Swelling...Relieves Pain... Promotes Healing Through Enchancement of Fibrinolysis at the Site of Trauma or Infection.

References: 1. Innerfield, I.; Shub, H., and Boyd, L. J.: New England J. Med. 258: 1069 (May 24) 1958. 2. Miller, J. M.; Godfrey, G. C.; Ginsberg, M. J., and Papastrat, C. J.: J. A. M. A. 166:478 (Feb. 1) 1958. 3. Davidson, E; Prigot, A., and Maynard, A. de L.: Harlem Hosp. Bull. II: 1 (June) 1958 *Reg. U. S. Pat. Off.



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Established Efficacy and Safety: For five years VARIDASE, in parenteral form, has been used with success in many thousands of cases. Its ability to control inflammation, swelling and associated pain, aid penetration of antibiotics, and hasten healing has been demonstrated in such conditions as severe trauma, infected ulcerations, and following extensive surgery.

Now, Parenteral Effectiveness . . . Simple Buccal Route: New VARIDASE Buccal Tablets give your patients the benefits of systemic VARIDASE therapy without the inconvenience of repeated injections. Absorbed through the buccal mucosa in fully effective amounts, VARIDASE Buccal Tablets may be used as practical adjunctive therapy in your practice within these broad classifications:

Inflammation and edema associated with: trauma and infection • cellulitis • abscess • hematoma • thrombophlebitis • sinusitis • uveitis • chronic bronchitis • leg ulcer • chronic bronchiectasis.

Each VARIDASE Buccal Tablet contains 10,000 Units Streptokinase and 2,500 Units Streptodornase.

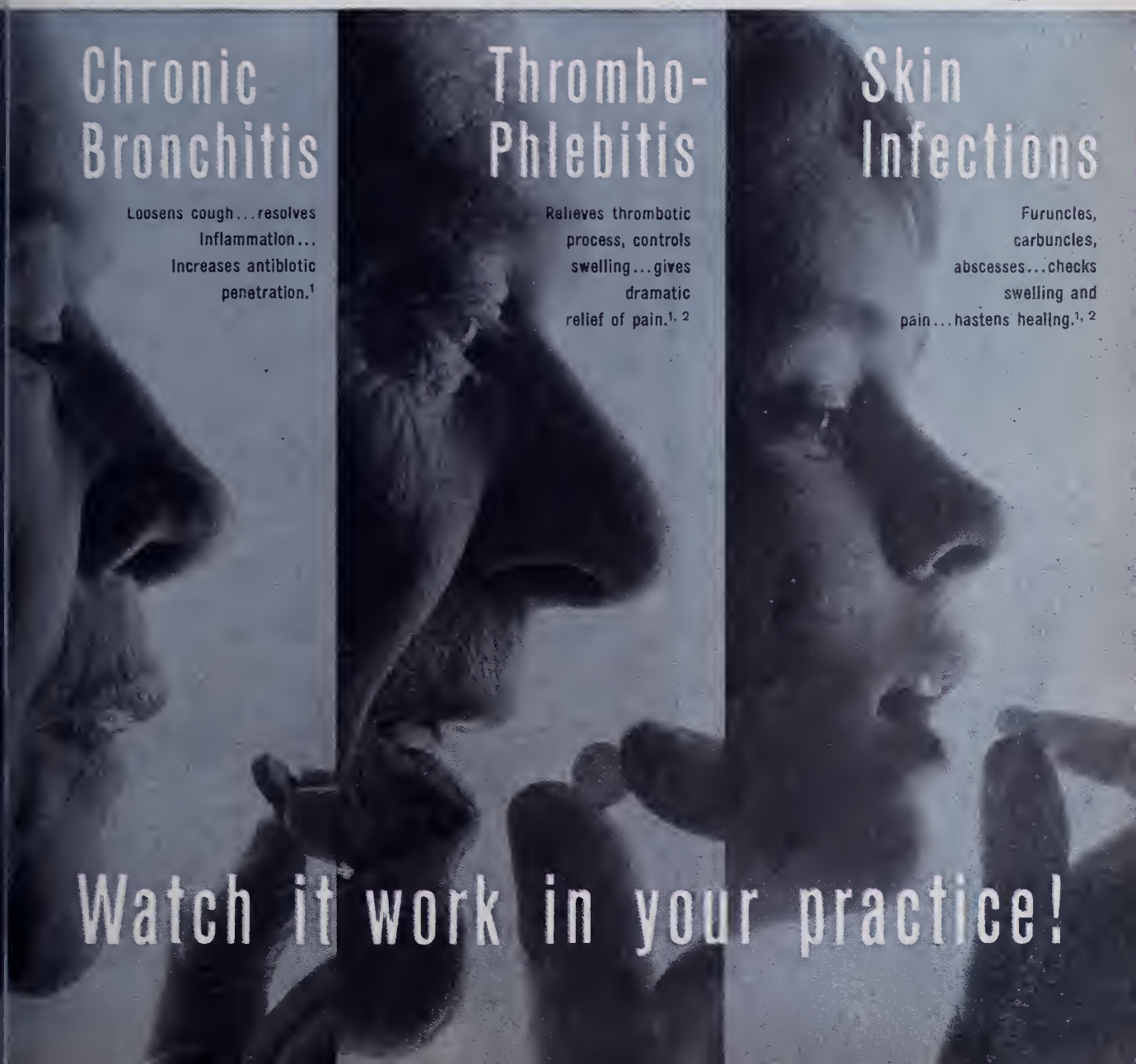
Administration: VARIDASE Buccal Tablets should be retained in the buccal pouch until dissolved. For maximum absorption patient should delay swallowing saliva.

Dosage: One tablet four times daily for a minimum of three days. When infection is present, VARIDASE Buccal Tablets should be given in conjunction with an antibiotic such as ACHROMYCIN* V Tetracycline and Citric Acid.

Available in bottles of 24.

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LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York



For Speedier Return to Normal Nutrition

Meat...

in Inflammatory Conditions of the Colon

The physiologic depletion accompanying acute infectious and inflammatory conditions of the bowel makes replacement therapy the key to nutritional rehabilitation.

In addition to the loss of important electrolytes, such as potassium and sodium, large amounts of protein are lost in the fluid, blood and exudate from the bowel. In the acute state of such affections, utilization of what protein can be ingested is further affected by increased protein catabolism and by impairment of certain hepatic functions.

Dietary rehabilitation must be carried out within the framework of a diet restricted in fiber and in irritating substances. Foods allowed must be easily digested and appetizingly and attractively prepared to encourage eating.

Tender lean meats—finely ground in the initial diet and later served in a wide variety of appealing ways—can be an important source of the protein and minerals required by the convalescing patient.

Meat fits admirably into the requirements of the permitted diet not only because of its taste, digestibility, and physical characteristics, but also because of its contribution of high quality protein, the minerals potassium, iron, phosphorous, sodium, and magnesium, and all the known B vitamins.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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running noses and open stuffed noses orally



Relief in minutes....lasts for hours

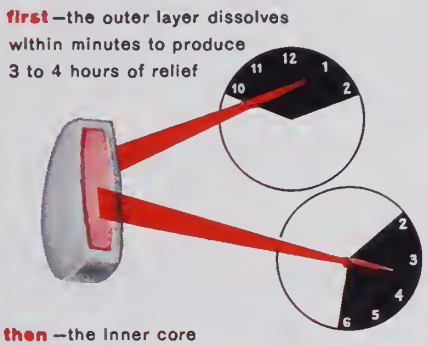
In the common cold, nasal allergies, sinusitis, and postnasal drip, one timed-release Triaminic tablet brings welcome relief of symptoms *in minutes*. Running noses stop, clogged noses open—and *stay* open for 6 to 8 hours. The patient can breathe again.

With *topical* decongestants, "unfortunately, the period of decongestion is often followed by a phase of secondary reaction during which the congestion may be equal to, if not greater than, the original condition. . . ."* The patient then must reapply the medication and the vicious cycle is repeated, resulting in local overtreatment, pathological changes in nasal mucosa, and frequently "nose drop addiction."

Triaminic does not cause secondary congestion, eliminates local overtreatment and consequent nasal pathology.

*Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

Each timed-release tablet keeps the nasal passages clear for 6 to 8 hours— provides "around-the-clock" freedom from congestion on just three tablets a day



Each timed-release TRIAMINIC *Tablet contains:*

Phenylpropanolamine hydrochloride	50 mg.
Pheniramine maleate	25 mg.
Pyrilamine maleate	25 mg.

Dosage: 1 tablet in the morning, mid-afternoon, and in the evening, if needed. To be swallowed whole to preserve the timed-release feature.

Also available: Triaminic Juvelets, timed-release, half-dosage tablets; Triaminic Syrup, for children and those adults who prefer a liquid medication.

Triaminic®

timed-release tablets

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada



Neo-Synephrine now has three complementary compounds added to its own dependable, decongestive action for more complete control of the common cold syndrome.

The "syndromatic" action of Neo-Synephrine Compound Cold Tablets brings new and greater effectiveness to the treatment of the common cold syndrame.

protection... through the full range of common cold symptoms

Each tablet contains:

for **NASAL STUFFINESS, TIGHTNESS, RHINORRHEA**

NEO-SYNEPHRINE HCl 5 mg...... First choice in decongestants for its mild but durable action and excellent tolerance.

for **ACHES, CHILLS, FEVER**

ACETAMINOPHEN 150 mg. ..... Dependable analgesic and antipyretic

for **RHINORRHEA, ALLERGIC MANIFESTATIONS**

THENFADIL® HCl 7.5 mg. ..... Effective antihistaminic to relieve rhinorrhea and enhance mucosal resistance to allergic complications.

for **LASSITUDE, MALAISE, MENTAL DEPRESSION**

CAFFEINE 15 mg.

DOSE: ***Adults:*** 2 tablets three times daily.
Children 6 to 12 years: 1 tablet three times daily.

Bottles of 20 and 100 tablets.

Neo-Synephrine (brand of phenylephrine) and Thenfadil (brand of thenyldiamine), trademarks reg. U.S. Pat. Off.

Winthrop LABORATORIES · NEW YORK 18, N. Y.

new

PRONOUNCED TAY-O

Tao*

(brand of triacetyloleandomycin with glucosamine)

Capsules / Oral Suspension

designed for effective control of common gram-positive infections

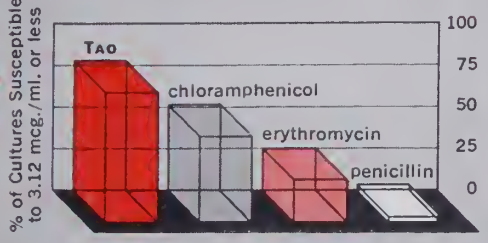
effective . . .

CLINICAL RESULTS	adults	children	all Staph infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were Staph. aureus and Staph. albus. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, Hemophilus influenzae.

even against resistant staph[1,2] . . .

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.[1]



well tolerated . . .

REACTIONS:

(a) adults	(b) children
Total—9.2% (20 out of 217)	Total—0.6% (1 out of 167)
Skin rash—1.4% (3 out of 217)	Skin rash—none
Gastrointestinal—7.8% (17 out of 217)	Gastrointestinal—0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus . . . stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation.

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since Tao is therapeutically stable in gastric acid, it may be administered at any time, without regard to meals.

Supplied: Tao Capsules—250 mg. and 125 mg.; bottles of 60. Tao for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 476.

Roerig Rx NEW YORK 17, N. Y.

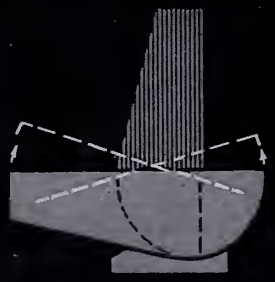
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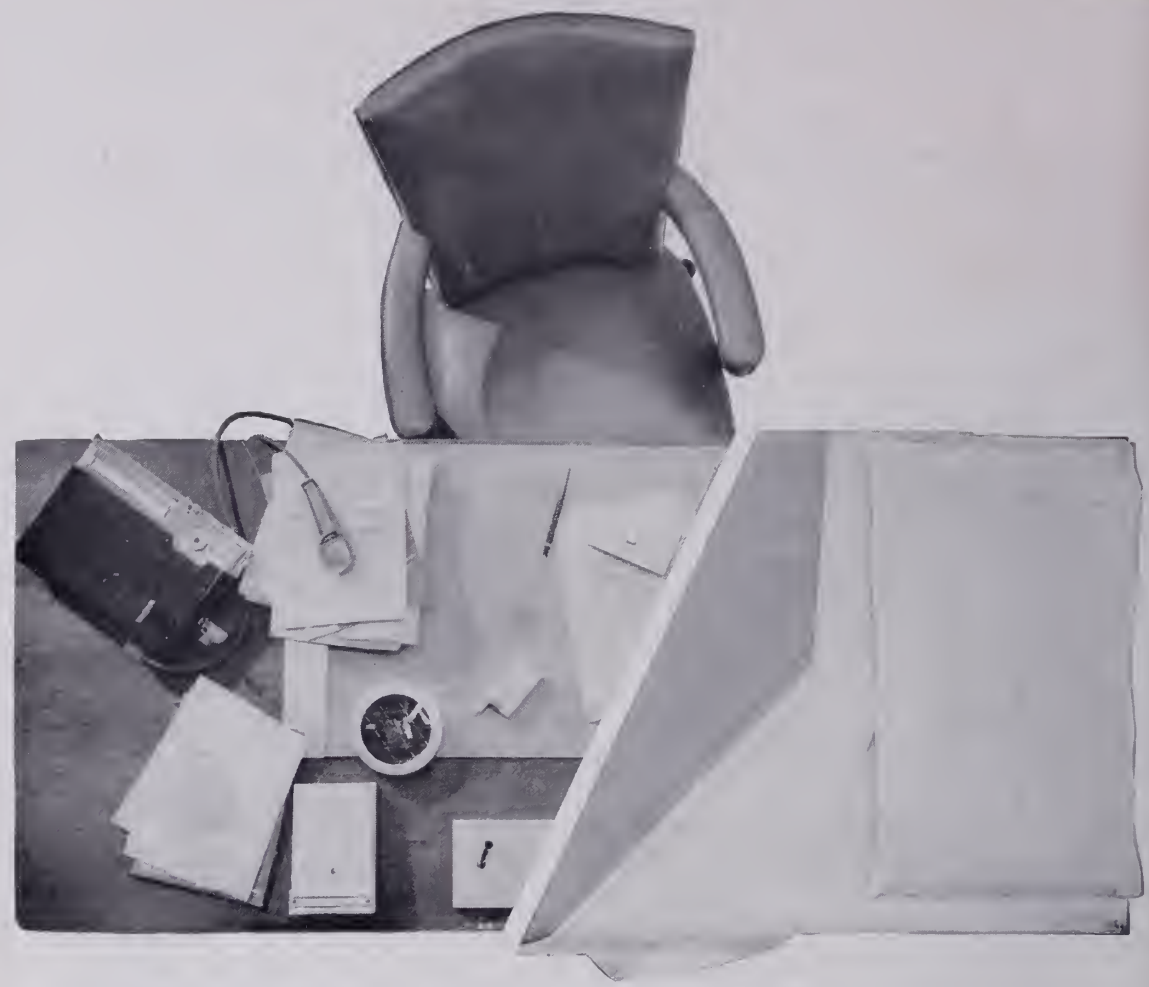
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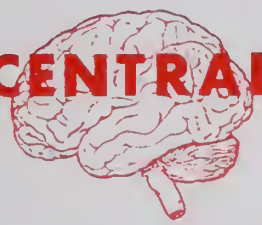
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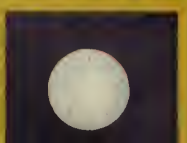
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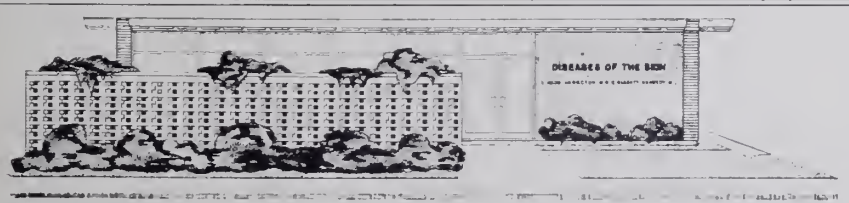
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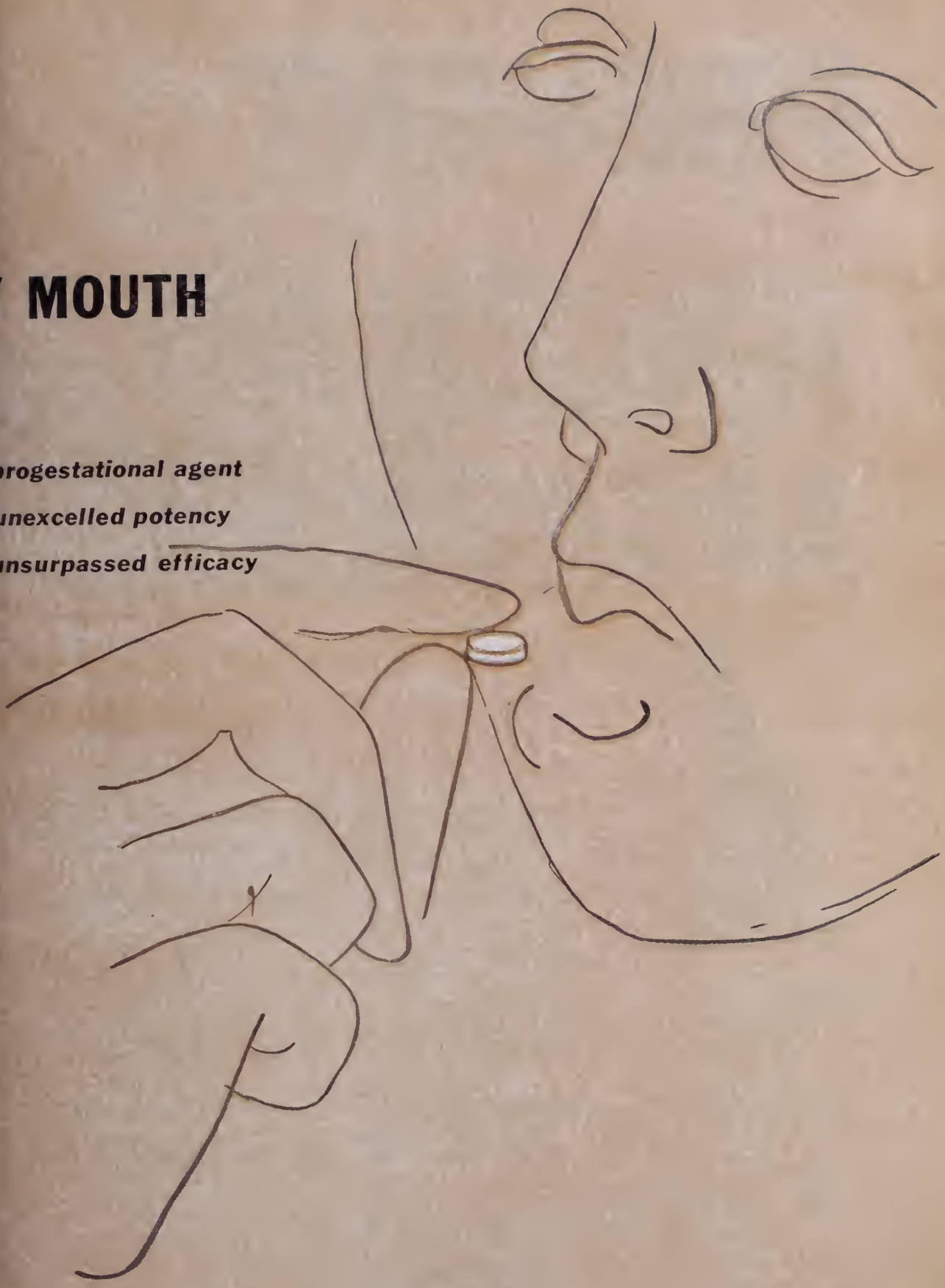
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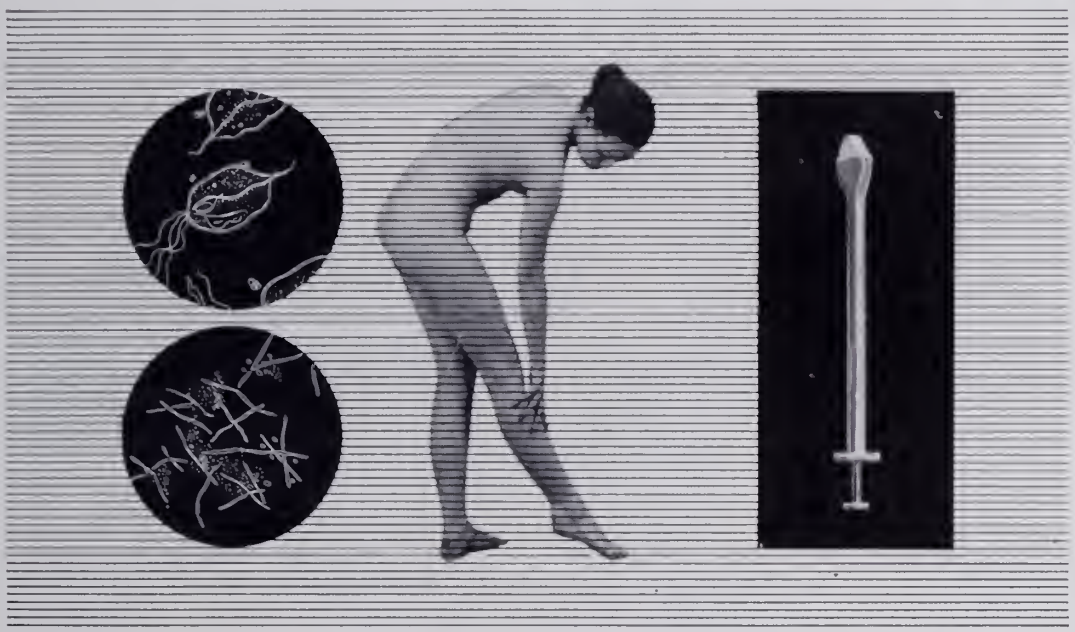
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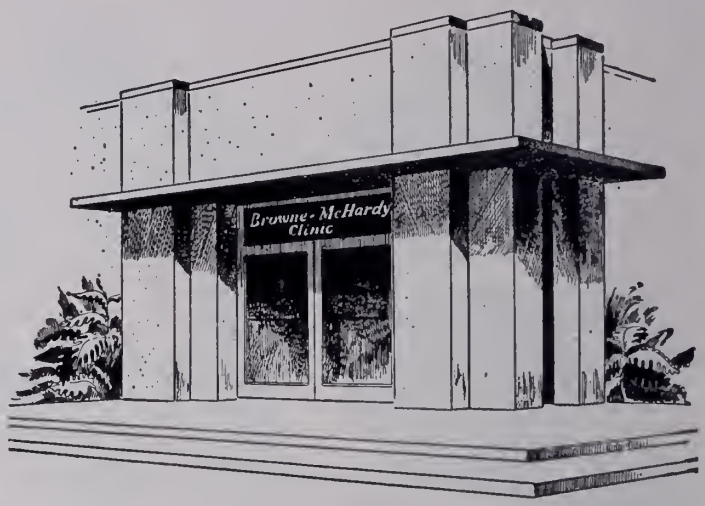
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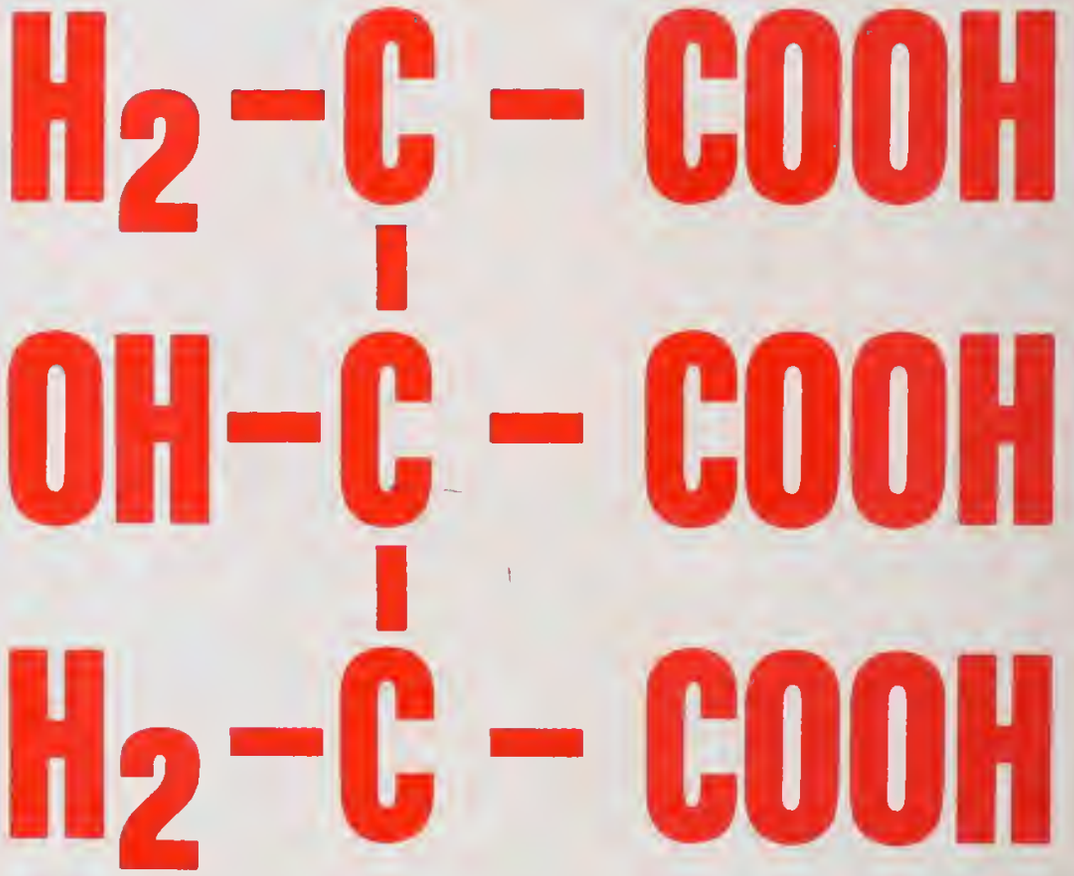
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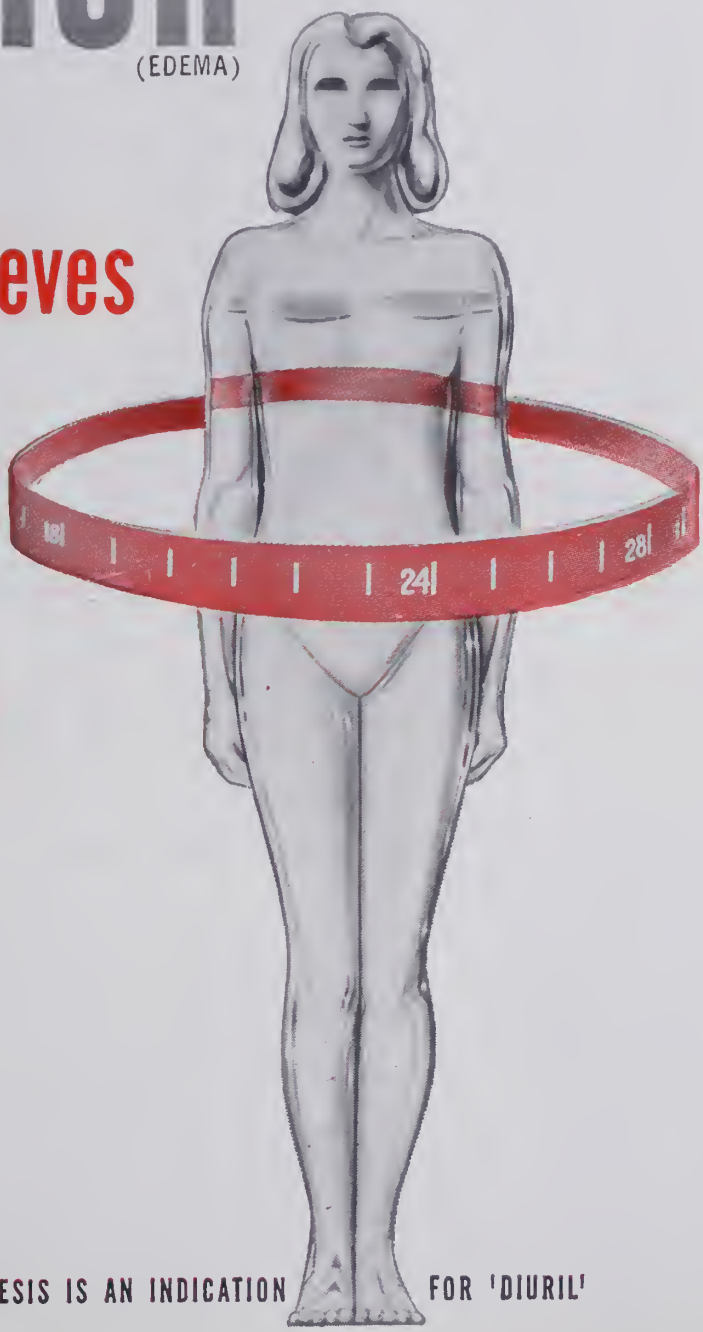
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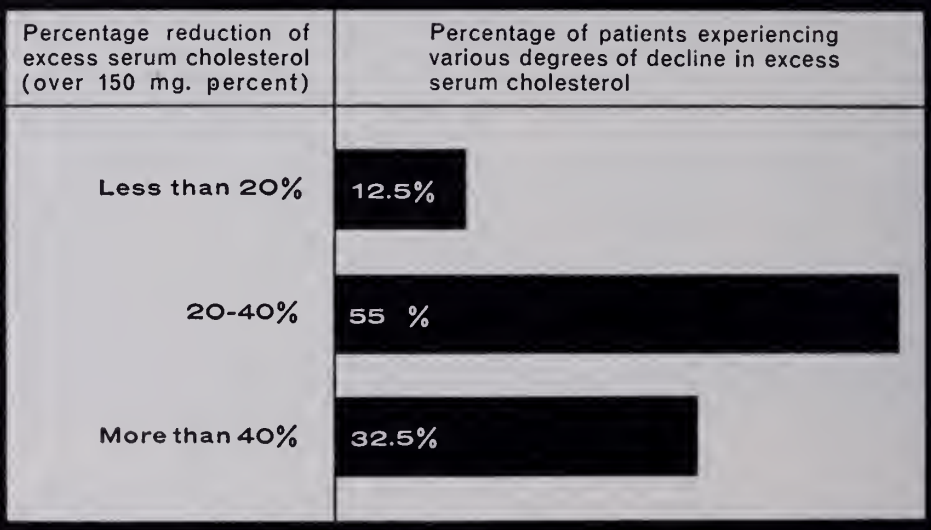
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THE DIAGNOSIS AND TREATMENT OF THROMBOSIS OF THE INTERNAL CAROTID ARTERY

Report of Two Cases *

RICHARD W. LEVY, M. D.
DENNIS ROSENBERG, M. D.
New Orleans

Cerebrovascular accidents in the form of thrombosis are frequently seen by the practitioner. Over the past twenty-five years, several forms of therapy have been proposed, including vasodilators, stellate ganglion block, and anticoagulants. In the past five years, much attention has been focused on one group of patients who have suffered a "stroke," the cause of which is arteriosclerotic occlusion and thrombosis of the internal carotid artery. Although this cause for "strokes" has been recognized for many years, the diagnosis usually was not made before death, or, if recognized, the physician assumed a passive attitude towards its treatment. We now know that definitive treatment is available for such patients. The syndrome, diagnostic and confirmatory tests, and therapy will be discussed here briefly.

SIGNS AND SYMPTOMS

The clinical picture of thrombosis of the internal carotid artery is usually one of repeated minor cerebrovascular accidents, which previously had been considered as "cerebrovasospasms" or "little strokes" involving the terminal cerebral arteries. It is now recognized that stenosis of the carotid artery will give rise to the "little stroke syndrome." The patient's complaints may include a wide variety of symptoms, such as headache on the affected side, lightheadedness, personality changes, seizures, aphasia, fleeting disturbance of vision on the affected side, contralateral weakness, and incoordination or paresthesiae. Some believe that gradual stenosis of the internal carotid artery by advancing plaque formation will not give rise to these symptoms of cerebral ischemia because of the cerebral collateral circulation. It must be realized, however, that the state of the collateral circulation is the cardinal consideration, and when this is inadequate, or when the systolic blood pressure is low, a decreased flow of blood through the carotid artery will produce symptoms. Initially, symptoms tend to be intermittent, but as the occlusion progresses in the presence of an inadequate collateral circulation, they increase in frequency and intensity.

DIAGNOSIS

Proper treatment of these patients depends on the diagnosis being suspected during the stage in which the symptoms are transient. Aside from the history of minor "strokes" indicative of cerebrovascular insufficiency, suspicion is strengthened when pulsation in the internal carotid artery is diminished just below the angle of the jaw. It is important to realize that the area of maximal pulsation in the neck is at or just below the carotid bifurcation, which lies

* From Department of Neurosurgery and Vascular Surgery, Touro Infirmary and Charity Hospital, New Orleans, Louisiana.

about one and one-half inches below the angle of the jaw. If the pulse is followed up to the angle of the jaw, it is probably the internal carotid artery that is being palpated. Infrequently, no difference in pulsation may be felt between the two sides in known cases of thrombosis of the internal carotid artery. It has also been suggested that the internal carotid pulse be sought intraorally along the posterior-lateral pharyngeal wall, but this method is often not easily tolerated by the patient. Measurement of the pressure in the central artery of the retina by means of an ophthalmodynometer is a useful and safe aid in the diagnosis of lesions of the carotid artery. The ophthalmic artery, the first and only extracranial branch of the internal carotid artery gives rise to the central artery of the retina, and a significant decrease in the pressure in this artery is a reliable indication of stenosis of the carotid artery or occlusion on that side.

If the clinical picture conforms to this description, regardless of a palpable difference between the internal carotid pulsations in the neck, the patient should be suspected of having an occlusion of the internal carotid artery. Not all patients, however, in whom this diagnosis is suspected are suitable candidates for surgical treatment. If the disease occurs in a person who has a reasonable chance of having segmental arteriosclerotic occlusion, then a definitive approach should be undertaken promptly and aggressively. The more localized and partial the obstruction, the higher the incidence of surgical success. The favorite site of occlusion is at the bifurcation of the common carotid artery into the internal and external carotid arteries. A carotid arteriogram can be carried out easily to demonstrate the occlusion.

TREATMENT

The methods of surgical treatment include: (1) arteriotomy with thrombo-endarterectomy, (2) bypassing the occlusion by means of a plastic vessel shunt from the aorta or subclavian artery to above the occluded segment, (3) resection of the occluded area with replacement by a plastic graft and reestablishment of arterial flow, (4) end-to-end anastomosis of a patent external or common carotid artery to the internal carotid artery above the occlusion. (Figure 1).

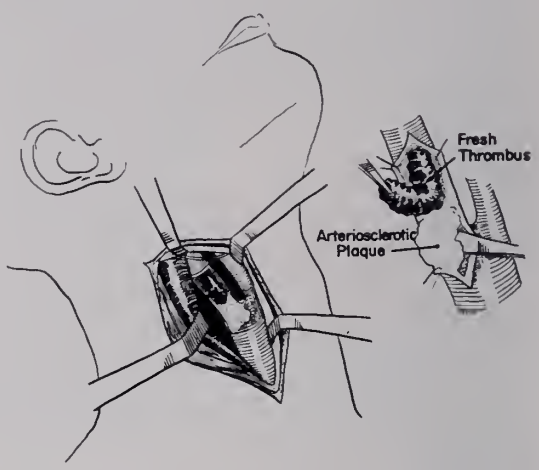


Figure 1.—Diagram illustrating the technique of carotid thromboendarterectomy.

The ideal candidate for surgical treatment has partial stenosis at the origin of the internal carotid artery which can be removed by thrombo-endarterectomy. By this technique, the vessel is incised longitudinally over the plaque (or in suitable instances where length of available vessel presents no problem, the artery is completly transected), and a plane is developed between the atheromatous plaque and the "normal" arterial wall. The occlusive debris is peeled out, after which the thinned vascular wall is reconstituted.

Operative success depends on both patency of the distal segment and extent of the occlusive process. Blood flow can almost always be reestablished successfully when the occlusion is partial, but the total occlusion must be submitted promptly to operation before the thrombus reaches the intracranial portion of the vessel. Unless retrograde bleeding occurs, it is likely that distal thrombosis or occlusive disease is advanced and blood flow cannot be reestablished. Occasionally, relatively fresh nonadherent distal thrombus can be extracted followed by brisk back-bleeding, with dramatic resolution of symptoms.

Recently, attention has been focused on coexistent stenosis at the origin of the vertebral artery, and further operative relief

of occlusion in this location is suggested. It may well be advisable in these instances of vertebral and carotid arterial thrombosis to use hypothermia if blood flow through the external carotid artery cannot be maintained during the procedure. When body temperature is lowered to 30 degrees C., cerebral metabolism is decreased, and function with longer periods of anoxia may be assured.

More frequent use of cerebral angiography will allow earlier diagnosis of cerebral ischemia due to occlusion of the carotid artery. Surgical treatment must be instituted promptly to prevent major cerebral infarction.

REPORT OF CASES

Case No. 1.—R. K., a fifty-one year old left-handed mill worker, was admitted to Touro Infirmary on June 26, 1958. For five days preceding hospitalization, he had noted intermittent right frontotemporal headache, moderate difficulty in verbal expression, light-headedness, moderate incoordination in the left arm and hand, and numbness and tingling in the left hand. On the morning of admission, he became drowsy and confused. On neurologic examination, he was observed to be drowsy and slightly confused. The cranial nerve segments were intact. Pulsations were diminished in the right internal carotid artery in the neck. The left upper extremity was weak, and movements of the left hand were poorly coordinated. The deep tendon reflexes were increased in the left upper extremity.

Within four hours of admission, a right percutaneous carotid angiogram was made with use of thiopental sodium. Complete occlusion of the right internal carotid artery was demonstrated just distal to the carotid bifurcation (Figure 2).

Within six hours of admission, a thrombo-endarterectomy was carried out on the right internal carotid artery with removal of an arteriosclerotic plaque and an associated fresh thrombus. Postoperatively, the patient received anticoagulants. He made an excellent recovery, and by the time of dismissal from the hospital on July 4, 1958, he was relatively asymptomatic. On neurologic examination at this time, only minimal residual weakness and slight incoordination in the left upper extremity were noted.

Case No. 2.—E. S., a forty-eight year old right-handed farmer, was admitted to Charity Hospital on May 26, 1958. Seven months before admission, he noted the onset of right frontal headaches and light-headedness. These symptoms recurred intermittently. One month before hospitalization, the headaches intensified, and he noted, in addition,



Figure 2.—Arteriogram demonstrating the complete occlusion of the internal carotid artery.

episodes of weakness and numbness of the left hand. On neurologic examination on admission, the patient was observed to be slightly confused, with minimal weakness and moderate incoordination of the left upper extremity. A neurologic survey was begun, but the patient deserted the hospital on June 11, 1958.

He was readmitted to Charity Hospital on June 24, 1958, with intensification of his previous complaints. On reexamination at that time, he was moderately confused, with left hemiparesis and impaired stereognostic sense in the left hand. The right internal carotid pulse in the neck was diminished. Three days after this admission, a right percutaneous carotid angiogram was made with use of thiopental sodium, and partial occlusion of the internal and external carotid arteries was demonstrated (Figure 3). On the same day, the



Figure 3.—Arteriogram demonstrating partial occlusion of the internal and external carotid arteries.

right internal carotid artery was explored, but the surgeon was unable to demonstrate adequately an occlusion. After the operation, the patient's left side became progressively weaker, and by the second post-operative day, he had left hemiplegia. A carotid angiogram was made again on July 9, 1958, and complete occlusion of the right internal carotid artery was seen at the carotid syphon. Further attempts at endarterectomy were not considered indicated.

ON THE CRITERIA FOR THE ADEQUATE MANAGEMENT OF DIABETES *

W. M. LUIKART, M. D.†

Baton Rouge

The formulation of criteria for the adequate management of diabetes requires some consideration of the fundamentals of the disease. Diabetes is a disorder of intermediary metabolism involving fat and protein, as well as the more obvious carbohydrate disturbance. The generalized nature of the disorder might be anticipated from the concept of the metabolic pool,[1] wherein it is held that the enzymatic reactions through which metabolites are degraded, energy is produced, and tissue is synthesized, have in common at least one major pathway involving an abundant active metabolite.[2] This is a two-carbon fragment designated "active acetate," and has been identified by Lipmann et al,[3] as an acetylated coenzyme-A, one fragment of which is pantothenic acid, a vitamin. Insulin is notoriously involved in the pathologic physiology of diabetes. Its absence, relative or absolute, has been shown seriously to interfere, not only with the metabolism of carbohydrate, but also with that of fat and protein.[4] There is evidence in addition that in diabetes there is interference not only with the hexokinase reaction,[5] but also with the function of several vitamins which are components of enzyme systems concerned with intermediary metabolism.[6,7] The diabetic state is clearly related to insulin deficit although it is equally clear that other factors, especially hypothalamic, pituitary, and adrenal functions, are of great importance, though the relationship is not clear, and their role, whether primary or secondary, is uncertain. The adrenal relationship has been reviewed by Gordon.[8]

If these concepts are valid—and there is considerable supporting literature—it is to be anticipated that control of hyperglycemia, whether by dietary reduction of the metabolic load, insulin substitution therapy, or artificial stimulation of the insulin mechanism, cannot prevent all of the clinical effects of diabetes mellitus. That such therapy does fail to prevent all of the features of diabetes, though it has greatly improved the lot of the diabetic, is evident from the continued occurrence of the degenerative conditions commonly associated with diabetes of substantial duration. Nevertheless, until the ultimate molecular defect in diabetes, is fully characterized it appears reasonable to persevere in attempts at restoring to the norm as nearly as possible those deviations from the physiological which are definable and correctible with the knowledge and with the means at hand.

TWO PRINCIPAL PHILOSOPHIES OF MANAGEMENT

The fundamental elements in the present method of treatment are exercise, weight control, and insulin. The details and the precision of application of these elements vary largely between two schools of thought, although middle of the road voices, such as Leiter's are heard.[9] The one, which may best be termed the physiological school, exemplified by the Joslin group, attempts to rectify all deviations from the norm insofar as is humanly possible. The other, which may be termed the "free-diet" or clinical or practical school, exemplified by Tolstoi,[10] seeks to prevent symptoms and acidosis and to normalize the weight, insofar as is practical, with insulin enough to insure adequate carbohydrate utilization, and without undue inconvenience to the patient.

There are areas of agreement between the two schools. These are the provision of adequately nutritious diets, the use of enough insulin and the control of weight. While Tolstoi advocates a free diet, he does not advocate a licentious diet, and he does not call it a free diet but a "normal diet . . . suited to the patient's tastes, customs, and

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* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, May 6, 1958, in Shreveport, La.

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appetite. It does not mean that . . . he is to consume tremendous quantities of food or prodigious amounts of sweets. Furthermore, the maintenance of optimum weight is a must".[11] It is apparent that if the patient is to maintain "an optimum weight" he will have to exercise considerable restraint, unless his "tastes, customs and appetite" happen fortunately to coincide precisely with his metabolic needs.

Undoubtedly, the principle of insulin dosage enough to prevent symptoms and avert ketosis will in many instances coincide with the dosages required under strict control, remembering that Tolstoi's patients must maintain optimum weight, and this precludes overeating. But these are gross features of the pathophysiology of diabetes. The areas of disagreement are found in important details of management. The physiological school is concerned with the hyperglycemia, glycosuria and, at times, hyperlipemia [12] of diabetes, while the practical school is not. The physiological school feels that hyperglycemia is a major factor in the aggravation of the insulin deficit,[13] in the production of diabetic neuropathy, retinopathy, and nephropathy, and in the acceleration of the rate of development of atherosclerotic disease. The practical school believes to the contrary that hyperglycemia is not a factor, and that the degenerative aspects of diabetes are an integral part of the disease, and inevitable.[14,15] It should be noted, however, that Tolstoi does seek to control polyuria, and this necessarily involves a certain degree of control of glycosuria and of hyperglycemia. There is then a quite different philosophy of treatment between these two schools, and it is this difference which is crucial when the criteria of adequate management are to be selected.

It is conceded that incontrovertible statistics are not now available which could settle the issue finally because absolutely comparable series, matched in regard to age of onset, duration, uniformity of treatment, and type of diabetes, are not available. In particular, two major categories of diabetes mellitus are emphasized by Bornstein and Lawrence [16] and by Lawrence:[17] a severe type with usual onset at an early age, in which there is no available plasma-insulin, and in which an insulin antagonist may be present, and a mild diabetes, in which plasma-insulin activity is of the order of 70 per cent of normal, insulin insensitivity does not occur, and which is usually but not always found in the mature-onset diabetic. Pollack [6] suggests that severity of diabetes is definable in terms of longevity, deterioration of the individual, and association of degenerative changes; whereas others speak only in terms of insulin requirement. It is clear that series reported with mixed types and degrees of diabetes and with varying definitions of types cannot very well be compared.

PREVENTION OF DEGENERATIVE CHANGES

The pathogenesis of degenerative changes in diabetes has not been explained; this is also true of degenerative diseases in the nondiabetic. However, it is a fact that degenerative vascular disease in diabetes is not inevitable as is pointed up by the report by West [18] of normal renal and retinal findings after thirty-five years of diabetes. This gives hope that prevention may be possible. Root and Barclay,[19] in reviewing the Joslin series of 34,000 cases from 1898 to 1950, concluded that the disease shows a general tendency to progression but that a remarkable prolongation of life expectancy observed over the years could be attributed, aside from the advent of insulin, to early diagnosis and intelligent cooperation between the physician and the patient.

There is a high degree of association between obesity and diabetes, and between obesity in the diabetic and incidence of degenerative vascular disease. It is generally accepted, therefore, that ideal weights should be sought for the diabetic. All of us know, however, how difficult is the achievement of weight control. The stubborness of obesity is a continuing and frustrating problem. We are forced to admit that we have no really satisfactory understanding or treatment for it, and that starvation, while sometimes helpful, is no real solution.

Of interest in this connection is the apparent demonstration by Feller [20] that fat makes fat; that is, that adipose tissue can take up acetate, for example, and convert it into fat, and this at a rate faster than can liver tissue. Related to the problem of obesity is the question of fat content of the diet. Edeiken [21] in 1945 reported that low fat diets reduced incidence of premature cardiovascular abnormalities in younger diabetics. Malmros [22] suggested, from the lowered diabetic morbidity and mortality rates in Sweden during the World War II scarcity of butter-fat and eggs, that dietary fat may be a factor in diabetic vascular disease. Singh [23] reported amelioration of diabetes as regards insulin requirement and glucose tolerance curves in patients on a low fat diet; it is to be noted that his patients were also on an ideal caloric intake. Tuller et al [24] studying blood lipids in acidosis and coma found that abnormalities in serum lipids were extremely common. They cite the reports of Keiding et al [12] and Barach and Lowy,[25] indicating that generally poor control (in the Joslin sense) without actual acidosis, also causes abnormalities in the various lipoprotein bands. Hirsch, Phibbs, and Carbonaro,[25a] measuring esterified fatty acids, showed that postprandial hyperlipemia is markedly abrupt in diabetics, and, most importantly, that this rise is greater in the presence of hyperglycemia. This finding may not indeed be conclusive, but it cannot be denied that it represents a strongly suggestive link in the theory that seeks to relate hyperglycemia to disordered fat metabolism to vascular disease. It is suggested that these several reports indicate the desirability of considering, and in so far as possible, correcting those serum lipid deviations which may be encountered in the diabetic. It should be mentioned that Wilkinson [26] has suggested that the hypercholesterolemia of some diabetics could be a genetic phenomenon, inherited with diabetes merely because of the coincidental apposition of the corresponding genes in the same chromosome; this might vitiate a causal relationship between diabetes, its vascular complications, and hypercholesterolemia.

Duncan,[27] in discussing the favorable effects of exercise in diabetes, remarks that the possible beneficial effects of exercise in preventing atherosclerotic changes have been largely overlooked by the epidemiologic investigators in the field of atherogenesis versus dietary fat. Muri,[28] noting a relatively low incidence of retinal and renal changes among poorly controlled diabetics in a rural setting, characterized by social and financial stability on a simple plane, where heavy manual labor is the norm, suggested that a favorable environment, free of stress, with much physical exercise, might be the principal factor accounting for his findings. It is suggested that the degree of muscular development, and the physical "fitness" of the patient is worth noting in evaluating his management.

HYPERGLYCEMIA

Houssay [29] showed in 1947 that in experimental diabetes, hyperglycemia produces exhaustion of those beta cells which are damaged or reduced in number. Lukens and Dohan [30] found that minimizing hyperglycemia could arrest the diabetic state in pituitary diabetes in the cat; and more recently Lukens [31] showed that in the cat and dog massive glucose injections produced degenerative changes and atrophy of beta cells, and in some instances resulted in permanent diabetes.

Several ideas of the possible mechanism of production of degenerative vascular lesions by hyperglycemia have been advanced.

The most prevalent idea is that broad fluctuations in blood sugar level incite the stress reaction with consequent adrenocortical imbalance which, in turn, as suggested by Goodman,[32] affects the supporting fibrous connective tissue of smaller vessels, initiating the basic lesion. Kinsell [33] suggests that marked fluctuations of blood-sugar levels, by disturbing cellular osmotic relationships, damage the cells, especially those of the vascular intima, rendering them subject to abnormal deposition of lipids; any factor, endogenous or exogenous, which tends to increase plasma lipids

would enhance the process. This interesting hypothesis brings to mind that in the nondiabetic, blood sugar fluctuations (or other osmotic changes) though of lesser degree might also promote vascular damage, though more slowly. Such a view would correlate well with the observation that while degenerative vascular lesions occur in both nondiabetics and diabetics, they progress more rapidly in the latter. Givner [34] suggests that diabetic retinopathy may result from diabetes, B 12 deficiency induced by diabetes, and adrenal hyperfunction. It has been shown by Friedenwald [35] that cortisone injections in alloxanized animals resulted in renal lesions similar to intercapillary glomerulosclerosis, and retinal capillary lesions similar to those of the diabetic. Pollack [6] notes that in the diabetic there are nitrogen loss and disturbances in riboflavin and nicotinamide metabolism, and suggests that periods of intense glycosuria, which are often attended by mild ketosis, interfere with fundamental enzyme systems which are thought to be concerned in the pathogenesis of atherosclerosis. Wortham and Headstream [36] point out that in the strictly controlled diabetic nocturnal hypoglycemia and rebound hyperglycemia are apt to occur; and that in the loosely controlled patient changes from a higher to a lower blood sugar, constituting a state of relative hypoglycemia, tend to occur; and suggest that these fluctuations stimulate adrenocortical activity which may in accordance with the observations of Friedenwald and others, be instrumental in the production of the vascular lesions of diabetics. An editorial in the Lancet [37] summarizes this type of viewpoint in England: unstable or poorly controlled diabetes leads to stress, to repeated excesses of adrenocortical activity, and ultimately to the production of degenerative vascular disease. These concepts deserve continuing attention and may, in time, yield their own additions to the criteria of adequate management of diabetes. For the present it would seem desirable to obtain steroid excretion studies in carefully selected cases, such as progressive retinal disease and Kimmelstiel-Wilson syndrome.

CLINICAL REPORTS ON DIABETIC DEGENERATIVE DISEASE

Regarding the clinical reports of diabetic degenerative disease we find Larsson et al [38] reporting that the majority of a series of juveniles developed retinopathy between the tenth and fifteenth years of diabetes on a free diet regime, with blood sugar kept below 200 mg. per cent and urines kept free of ketone bodies. Dolger [15] reported retinal hemorrhages in every single case of a series of 200 after ten to fifteen years; his series included 55 juveniles about evenly distributed among good, fair, and poor control. He concluded that the degenerative changes of diabetes are an integral part of the disease, not a complication, and that duration of diabetes is the major factor in the incidence of these lesions. Zins [39] found evidence of intercapillary glomerulosclerosis in 82 per cent of diabetics autopsied; he states that it is found in all cases of greater than fifteen years' duration. He believes that the renal lesion will progress despite therapy. Stearns et al [40] in post-mortem injection studies of coronary vessels in diabetics found coronary arteriosclerosis in each of 50 cases; complete occlusions were found in 28 of these. These authors state that severity of coronary arteriosclerosis is related to duration of the disease; they observed no correlation with insulin requirement. Jackson et al [41] in a report of a ten years' study of 75 children on diets "adequate by accepted standards" and on regular insulin given in 3 or 4 doses daily, found that retinopathy developed in 46 per cent of the cases. They concluded that duration of the disease was the major factor but conceded that lack of control was also a factor in development of degenerative vascular lesions. This report is twice cited by Tolstoi [10,11] (who does not advocate regular insulin) as proving that good control is ineffectual in preventing vascular damage. It is worth noting, however, that only 4 per cent of these cases developed nephropathy. Kinsell [42] remarks that this regime involving multiple doses of regular insulin means giving insulin by test and that the blood sugars could not have been maintained in physiologic range. Pollack [6] has pointed out that regular in-

sulin alone is inadequate in that it does not permit a normal nitrogen balance in the diabetic. Beidleman and Duncan,[43] reporting a case of Charcot joint due to diabetic neuropathy, note that 23 such cases reported in the literature were found typically in patients with many years of poorly controlled diabetes. Leopold,[44] analyzing the ocular changes in a series of 100 diabetics on insulin and measured low fat, high carbohydrate diet, arrived at the following conclusions: Closely controlled management reduces the incidence of corneal wrinkles, complicated cataracts, and to some extent, that of deep retinal hemorrhages and exudates. Richardson and Bowie,[45] reporting on the same group, found that the diabetes worsened in 55 per cent, but inasmuch as diabetes characteristically worsens with time, it is to be noted that 45 per cent of the cases did not worsen. Again on the same series, Naide [46] concluded that adequately controlled cases had a lower incidence of peripheral vascular disease; however, premature peripheral vascular disease was uncommon, hence not a useful criterion. Wilson, Root, and Marble,[47] in reporting a series of young patients with diabetes of long duration, found that the well controlled cases had an incidence of 25 per cent serious degenerative lesions, against 93 per cent for the poorly controlled group. Similarly, controlled cases showed 63 per cent twenty-year survival against 38 per cent for the poorly controlled cases. Tolstoi,[10,14] asks with reference to this report, "why did 7 per cent on the "free diet" fail to develop serious lesions, while 25 per cent of the controlled group did develop degenerative lesions?" It were better to note that 75 per cent of the controlled, and only 7 per cent of the free diet group, escaped serious lesions. Tolstoi,[14] goes on to say, and I quote: "There is no question that the incidence of retinopathy was less in the chemically controlled group, what puzzles me is why it should occur at all." He continues, with what should be a solution to his puzzlement: "These investigators too claim that they do not attain ideal control, but only a better degree."

Keiding, Root and Marble,[48] in an analysis of 451 cases with onset under age 30 and duration ten to thirty-six years, found that vascular complications were materially less common in strictly controlled diabetes. These authors concede that duration of diabetes correlates directly with incidence of degenerative vascular disease, but state that this study shows that degree of control is of even greater importance; they add that even excellent control according to their standards is far from ideal control, so that present methods cannot be expected to yield complete prevention of complications.

It remains to be seen whether tolbutamide will enhance the excellence of control, though it is of course not useful in the growth onset type of diabetes. To Keidling's comments should be added that it is well to remember that nondiabetics also develop vascular disease, and that unless diabetes should prove to hold the key to the general problem of atherosclerosis, we can scarcely expect control of diabetes, however perfect, to prevent vascular disease completely. The findings of Keidling, Root and Marble are reasserted by Marble,[49] with special reference to coronary artery disease, and concurred in by Sheppard [50] with special reference to ocular changes.

From England, Dunlop,[51] a convert to the physiological school, reports that in his cases the poorly controlled ones showed degenerative vascular changes and neuropathy three times more frequently than the well controlled; and Matthews,[52] reporting on 545 cases, found an incidence of retinopathy and albuminuria three times greater in the poor-control group, as compared to the fair-control group; he found this to be true in all age groups and durations of diabetes. On the continent Constam et al [53] report an incidence of 83 per cent severe degenerative vascular complications in a poorly controlled group, and 42 per cent in the combined good and fair control group of a series of cases of twenty or more years duration; and Fanconi [54] reports that in his experience, the well controlled patients show a lower incidence of late complications. This author makes the interesting suggestion that in the well-controlled diabetics, care for their health and avoidance

of excesses may be key factors in lowered incidence of late complications.

Joslin,[55] in commenting on the characteristics of diabetics awarded the "Quarter Century Victory Medal," states that, "searching for light on treatment it is evident that these patients, particularly the younger ones, went through a Spartan regime during the first few years they had the disease." Elsewhere,[56] he deplores, however, the overall incidence of 85 per cent complications after fifteen years of diabetes, but finds grounds for some optimism in the fact that one in ten diabetics can expect to live longer with diabetes than without it. A summary viewpoint on the question of control of hyperglycemia in diabetes is given by Colwell,[57] who states that, "We should maintain normal levels of blood sugar in an effort to avoid vascular complications unless and until it is proved unnecessary." It is well to reiterate that no one disputes the desirability, in the case of known or suspected coronary insufficiency, of allowing a more liberal type of management, appreciating that for such a patient the present and real dangers of hypoglycemia outweigh the long range dangers of hyperglycemia.

OUTLINE OF CRITERIA FOR ADEQUACY OF MANAGEMENT

With the foregoing considerations in mind, an outline of criteria for assessing the adequacy of management of diabetes is proposed as follows:

1. The patient should be kept free of symptoms and possessed of a sense of well-being.

2. He should be maintained at the ideal weight for his height and build, on a low-fat, high-protein, normal carbohydrate diet.

3. Insulin should be used in such dosage, and of such type, and timing, as to procure normoglycemia throughout the twenty-four hours; tolbutamide should be reserved for mild, mature-onset cases that cannot be controlled on diet alone.

4. He should be required to adhere to a program of physical fitness, even bordering on the athletic, with maximal activity within his limitations.

5. He should test his urine frequently, even three times daily in many cases, accepting the test as a natural part of his daily routine, even as he accepts polishing his shoes, combing his hair, and so on. There should be minimal or slight glycosuria but rarely, except in the coronary cases whose test should almost always show a trace.

6. A blood sugar should be done two or three times a year in the average case, more often in the labile and in the presence of coronary insufficiency. A nocturnal blood sugar should be checked occasionally in coronary cases.

7. Serum cholesterol and other lipids should be checked from time to time, and corrected whenever possible; the cholesterol should be kept below 200 if possible.

8. The patient should be reasonably free of emotional problems through whatever means, medicinal, social planning, recreational, psychotherapeutic, found indicated.

9. In selected cases, with lability, or associated with progressive retinal or renal disease, steroid excretion studies should be considered. General endocrine work-up may at times be indicated.

These criteria no doubt may be difficult of achieving in some cases, and naturally due regard must be had for the possibility of burdening the patient beyond his capacity. Nevertheless, so long as there is some reason to believe that maintaining the patient's homeostasis might protect him from degenerative changes, and until proof to the contrary, or a general solution to the problem of degenerative vascular disease is found, this writer believes that criteria such as are here presented, are rational and worth the effort and patience required.

SUMMARY

1. Some theoretical considerations on the nature of diabetes and its relation to degenerative disease are presented.

2. The two principal philosophies of management are discussed.

3. Experimental and clinical findings suggesting a relationship between diabetes, its chemical manifestations, and its associated degenerative vascular disorders are discussed.

4. Criteria for the adequate management of diabetes are proposed.

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PULMONARY EMBOLISM AND INFARCTION *

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The most common pulmonary disease encountered in general hospitals, in recent years, is pulmonary embolism. This conclusion was reached by two different groups of observers, one in the United States and the other in England. Each group set out to determine the incidence of pulmonary embolism in general hospital practice and trained their staff to be especially alert for the various manifestations of this disease. As a result, it was shown at the Graduate Hospital, University of Pennsylvania, that pulmonary embolism was more common than either bronchogenic carcinoma or pneumonia during the eighteen month period of study from 1955 to 1957.[1] Short made similar observations on a general hospital population in Bristol, England, during the years 1947 through 1950, and reached the same conclusion concerning pulmonary embolism.[2]

When viewed from the standpoint of autopsy material in general hospitals, the incidence of pulmonary embolism has remained remarkably constant at 10 per cent over a period of years. This figure is even higher in necropsies on inmates of nursing homes in large cities, reaching 25 per cent.[3] Thus it is evident that from both the clinical and pathological viewpoints, this condition is relatively common.

Although the two terms, pulmonary embolism and infarction are sometimes used interchangeably, they are by no means synonymous, and neither do the two conditions always coexist. Pulmonary embolism indicates the presence of bland emboli lodging in and occluding one or several branches of the pulmonary arterial tree. This condition is followed, in 50 to 75 per cent of cases, by pulmonary infarction, which refers to necrosis of the pulmonary parenchyma distal to the occluded artery. Typically pulmonary infarcts are hemorrhagic, and the area of necrosis is packed with extravasated erythrocytes, which may come either from the bronchial arterial supply of the lungs or from collateral pulmonary capillary anastomoses.[4] Infarction of lung tissue following embolism is not likely to occur unless there is antecedent embarrassment of the pulmonary circulation, as in chronic passive congestion, or unless there is coexistent parenchymal disease, such as pneumonia or bronchiectasis.

It has been estimated that for every fatal case of pulmonary embolism, approximately 9 or 10 nonfatal cases should be diagnosed clinically if the visiting staff is alert to the possibility.[5] This favorable ratio of 10 nonfatal to 1 fatal case is prevalent in very few general hospitals in this country at present, but it is a goal to keep in mind.

Although it was formerly believed that pulmonary embolism was usually seen only in postoperative or postpartal cases, it has become increasingly more evident that it is commonly encountered in medical cases as well, particularly in patients with cardiovascular disease.[6] Sixty per cent of all cases of pulmonary embolism occur in medical patients and at least half of these patients have heart disease. The remaining 40 per cent occur in surgical and obstetrical patients.[7]

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A study of *autopsy* material from Mercy Hospital, a 200 bed general hospital in New Orleans, revealed that pulmonary embolism and infarction was the direct cause of death in 32 cases over the five year period 1953 through 1957. During this same period of time there were 266 autopsies performed, so that the incidence of pulmonary embolism and infarction was 12 per cent of all autopsy cases. An analysis of the type of patient in which this complication occurred and the type of surgical procedure or medical disease preceding embolism is shown in Tables 1 and 2.

TABLE 1
TYPE OF CASE

	No. of Cases	Per Cent
Medical	19	58
Surgical	8	25
Obstetrical (amniotic fluid emboli)	2	7
Ambulatory	2	7
Post-traumatic	1	3
Total	32	100

Mercy Hospital in New Orleans 1953 - 1957, 266 autopsies, 32 cases of pulmonary embolism and infarction.

TABLE 2
SURGICAL OPERATIONS

Cholecystectomy		3
Craniotomy		1
Carcinoma of Rectosigmoid (exploratory laparotomy)		1
Ileocolostomy		1
Pneumonectomy		1
Tooth Extraction		1
UNDERLYING MEDICAL DISEASE		
Carcinoma		6
Pancreas	1	
Breast	1	
Gall Bladder	1	
Liver	1	
Lung	1	
Ovary	1	
Myocardial Infarction		5
Congestive Heart Failure		4
Acute Pancreatitis		1
Hydronephrosis and Bilateral Hydroureter		1

ETIOLOGY AND PATHOGENESIS

The source of pulmonary emboli in 85 to 95 per cent of cases is thrombosis of the deep veins of one or both lower extremities.[7,8] The thrombotic process usually begins in the plantar or calf veins and then propagates proximally along the deep venous tributaries and may extend to the iliofemoral system. A thrombus in the right side of the heart may produce pulmonary embolism. Occasionally the prostatic, pelvic and hemorrhoidal veins may be the source of emboli, and even less common are the veins of the upper extremity. However, it should be remembered that traumatic phlebitis of the antecubital veins secondary to repeated venipunctures, prolonged insertion of polyethylene tubes, and such intravenous medications as hypertonic glucose or saline, or bromsulfalein, may serve as the site of origin of pulmonary emboli.

There are certain conditions which predispose to thromboembolism, and knowledge of their existence is of significance in leading to the suspicion of pulmonary embolism. These are obesity, cardiac disease (especially congestive heart failure), anemia, varicose veins, previous thrombophlebitis, severe infections and malignancies. Advanced age, especially beyond 50 years, is a frequent predisposing factor. At least half of the cases are over 50 years of age. Trauma to the lower extremities, with and without fracture, prolonged immobilization and certain hematalogic disorders (e. g. polycythemia vera) also act as predisposing causes. In postoperative cases, embolism occurs most often from the eighth to the fourteenth postoperative day, although 25 per cent occur during the first week and 25 per cent after the second week. The incidence of embolism is highest in the more severe and extensive surgical procedures, such as gastrectomy, cholecystectomy, splenectomy and hysterectomy.[9]

Massive pulmonary embolism which occludes the main pulmonary artery and proves fatal in almost all cases, is not associated with infarction of lung tissue. The blockage in the lesser circulation produces increased pressure proximal to the site of obstruction with resultant strain on the right ventricle which in turn causes electrocardiographic and roentgenologic changes. The failure of the left ventricle to receive blood from the lungs results in decreased systemic output, fall in systemic blood pressure, and shock.

Pulmonary infarction, whenever it occurs, is located in most instances in association with a pleural surface, either peripheral or interlobar and mainly in the lower lobes, more often in the right lung. Infarction usually extends to the surface of the lung to involve the pleura, which reacts by an outpouring of fluid, either serous or serosanguinous. Pleural effusion is thus a frequent finding. Blood exudes into the alveolar spaces, and hemoptysis may occur also.

Chronic cor pulmonale may result from repeated bouts of pulmonary infarction or from recurrent showers of small emboli, occurring over a period of several years and producing right ventricular hypertrophy and eventually right sided heart failure. These showers of small emboli to the tertiary branches of the pulmonary arterial tree do not produce infarction.

SYMPTOMATOLOGY

The clinical syndromes produced by pulmonary embolism and infarction may be broadly divided into three groups: (1) Massive pulmonary embolism which produces a rather typical picture, and in most cases can be diagnosed by clinical, roentgenological, and electrocardiographic methods. It is due to complete or almost complete obstruction of the main pulmonary artery and results in the acute cor pulmonale described by Mc Ginn and White.[10] (2) Single or multiple pulmonary infarcts occurring close together in time, whose clinical manifestations are protean, and which are most likely to be confused with pneumonia, pleurisy with or without effusion, myocardial infarction, congestive heart failure, or tuberculosis. (3) Recurrent multiple small pulmonary emboli over a long period of time (several years) which give rise to pulmonary hypertension and chronic cor pulmonale. The last clinical syndrome is a rather rare occurrence, that of massive pulmonary embolism is more common and the syndrome of single or multiple pulmonary infarction is the most frequent of all. This classification is devised to depict the many and varied manifestations of pulmonary embolism and to give a broad panoramic view of its multiple aspects.

Massive pulmonary embolism is characterized by the sudden onset of agonizing dyspnea which remains throughout its course the predominating symptom and is out of all proportion to other findings. The next most common symptom is substernal oppression which often leads to the mistaken diagnosis of myocardial infarction. Vasomotor shock usually occurs and the patient's skin is pale, cold and clammy with distention of the cervical veins and constriction of the peripheral veins. The physical findings consist of apprehension and a feeling of impending doom, which very often the patient is unable to describe but is quite evident to the observer by facial expression. There is increased prominence and pulsation noted by inspection and palpation in the region of the 2nd and 3rd intercostal spaces just to the left of the sternum. A loud systolic pulmonic murmur is usually heard and the pulmonic second sound is sharp and increased in intensity. A friction rub may be heard in the same region. Diastolic gallop rhythm is sometimes present. There are dilation and increased pulsation of the jugular veins, and cyanosis is usually present. Fever may rise as high as 104°F, and a moderate leucoytosis is usually present. The chest roentgenogram reveals no evidence of infarction, but the main pulmonary artery region is prominent and decreases in size if recovery ensues. The electrocardiogram gives great assistance and is usually quite typical. The changes consist of a prominent S wave in Lead I with a Q wave in Lead III, depressed RS-T_1 elevated RS-T_3 and inverted T in Lead III, and in some cases inverted T waves in the right sided precordial leads.

The cardiovascular signs may subside quickly in hours or days until death or recovery occurs.

There is a special type of massive pulmonary embolism which may occur in obstetrical patients. It is due to amniotic fluid emboli and should be mentioned briefly. This catastrophe is ushered in by violent uterine contractions and premature rupture of the fetal membranes after which the patient develops sudden severe dyspnea,

cyanosis, a shock-like state, and usually a fatal termination.[11]

The second clinical syndrome of single or multiple pulmonary infarcts may vary in severity from mild to overwhelming. The typical picture of chest pain, hemoptysis, and x-ray density in the chest film is present in less than 50 per cent of cases, so that reliance on the presence of all these signs is unsound in making the diagnosis or instituting treatment. Pulmonary embolism with infarction may assume any of four guises: (1) pulmonary, (2) cardiac, (3) abdominal, (4) neurologic.[1]

Among the pulmonary diseases it may resemble are pneumonia, pleurisy (dry or with effusion), lung abscess, tuberculosis and lung cancer. Resemblance to pneumonia is more often close and it is frequently misdiagnosed as such. But lack of preceding respiratory tract infection and recurrent episodes in one lung and then the other differentiate pulmonary infarction. Pulmonary infarction is often the cause of dry pleurisy, and when effusion develops it is grossly bloody in 50 per cent of cases, mainly those with congestive failure. The rounded shadow of an infarct on the chest film may be mistaken for the solitary nodule of lung cancer. Pulmonary edema in the same or opposite lung may result from pulmonary infarction.

The cardiac syndromes it may mimic are myocardial infarction, coronary insufficiency, congestive heart failure and chronic cor pulmonale. Recurrent episodes of chest pain in patients recovering from myocardial infarction without further electrocardiographic evidence of new or spread of the old infarction are often due to repeated pulmonary embolism and infarction. Not only may pulmonary embolism be a sequel of myocardial infarction, but the converse may be true and myocardial infarction or coronary insufficiency result from severe pulmonary embolism. Congestive failure predisposes to pulmonary embolism and the latter, in turn, commonly precipitates heart failure or causes it to persist despite therapy. Pulmonary embolism may produce arrhythmias, usually paroxysmal and quite often atrial fibrillation.

Syncope associated with chest pain and dyspnea may be the first manifestation of pulmonary embolism and infarction. Occasionally syncope may occur alone. Hemiplegia and convulsions may result from decreased cardiac output leading to cerebral anoxemia following pulmonary embolism.

Occasionally pulmonary embolism may mimic the acute surgical abdomen, acute cholecystitis or subphrenic abscess.

The symptoms of pulmonary embolism with infarction are sudden dyspnea, chest pain which may be pleuritic or anginal in nature, shock-like state, with a feeling of faintness (and occasionally syncope), restlessness and sweating. Cough is a common symptom but hemoptysis is seen in only one-third of the cases of infarction. Bloody sputum is considered rather typical of pulmonary infarction and hemoptysis may be quite copious. The physical signs in order of importance are: tachycardia (up to 150/min.) out of all proportion to the fever and which is usually not affected by digitalization; tachypnea; cyanosis. Pleural rub, localized crepitant rales and decreased breath sounds are important local signs, and if present, aid greatly in the diagnosis. Exquisite tenderness over the site of the chest pain has been described as characteristic of infarction. Fever, usually mild, is present, but may be as high as 103 or 104°F. Jaundice is rather uncommon, but is important, if present. Examination of the legs is likely to be more informative than examination of the chest. Pain on direct posteroanterior compression of the calves is the most sensitive indicator of thrombosis of the deep calf veins. Other leg signs, including sole, calf or thigh tenderness, swelling and Homan's sign (calf pain on dorsiflexion of the foot) are found in less than half the cases, but should be diligently sought for daily.

The roentgen ray examination of the chest is the most valuable of all laboratory procedures. At the onset and for twenty-four hours thereafter, there may be merely slight elevation of the hemidiaphragm on the affected side. A negative chest film,

especially during the first two days, does not rule out the diagnosis of pulmonary embolism. If infarction ensues, one or more areas of opacification appear, usually in the lower lobes and more often the right than the left. These are usually hazy and poorly defined with indistinct margins, are rarely triangular but are usually round, oval or irregular. They occur nearly always in relationship to a pleural surface and particularly where two pleural surfaces meet. The cardiac or central margin is convex or "humped".[7] With organization and healing of the infarct, which usually takes two weeks, the involved area becomes converted into a distinct and sharply defined linear scar. If effusion develops, the infarct may be obscured by it, or by an enlarged heart, or it may be buried in the costophrenic angles. With incomplete infarction, which when it occurs, does so in patients with normal lungs, the roentgen ray shadows last only two to three days and heal by resolution and so leave no residual scarring.[12]

The electrocardiogram may manifest one or more of a variety of abnormalities, of a transient and characteristic nature, whose demonstration in a patient with an appropriate clinical picture supports the diagnosis of pulmonary embolism. There may be present one or more of the components of the full acute cor pulmonale pattern, previously described. Or there may be the electrocardiographic findings of "coronary insufficiency," manifested by ST segment depressions and T wave inversions over the left precordial leads. Again there may occur transient inversion of T waves in the right precordial leads. Arrhythmias are common, and atrial flutter or fibrillation occurs in as high as one-third of the cases, and is usually paroxysmal.[1,13]

The laboratory findings are a mild to moderate leucocytosis, elevated sedimentation rate, and elevated serum bilirubin. The most recent test to be introduced, and of special value in differentiating pulmonary and myocardial infarction, is the serum glutamic oxalacetic transaminase (SGO-T) level. This determination is elevated (over 40 U/ml.) early in myocardial infarction (in twenty-four to forty-eight hours) but is normal in uncomplicated pulmonary embolism and infarction. When pulmonary embolism is complicated by hepatic or biliary disease, myocardial infarction or musculoskeletal diseases, the SGO-T level is usually elevated, and so becomes unreliable as a differential test.[1,14]

The third clinical syndrome of multiple small pulmonary emboli to the smaller (tertiary) pulmonary arteries over a period of years results in pulmonary hypertension and chronic cor pulmonale. Owen and associates [15] collected twelve such cases of "silent" pulmonary emobli, and the clinical picture was usually that of increasingly severe congestive heart failure of undetermined etiology. Dyspnea and cough were frequent symptoms. Common auscultatory findings were accentuation of the pulmonic second sound, gallop rhythm and harsh systolic murmurs along the left sternal border in the 3rd and 4th interspaces. X-ray studies showed prominence of the main pulmonary vessels and right ventricular hypertrophy. All patients expired because of intractable congestive heart failure.

DIAGNOSIS

The diagnosis of pulmonary embolism and infarction is essentially a clinical one as there is no single symptom, sign, or laboratory finding which is pathognomonic of this condition. Since the diagnosis in the living patient can never be absolute, it is often difficult to convince the skeptical. The greatest error in recognition results from demanding too much to establish the diagnosis. The so-called typical picture with chest pain, hemoptysis, x-ray opacity, and leg signs occurs in less than half the cases, and to await the appearance of these is to miss the opportunity for early therapy. So first and foremost must be a *high index of suspicion of this condition* in all patients who have (1) the proper historical background, (i. e., postoperative, postpartal, post-traumatic, *bedridden patients and especially cardiacs),* and (2) one or more symptoms or signs of the pulmonary, cardiac, abdominal or neurological syndromes previously mentioned.

It is most commonly mistaken for pneumonia, either viral, or bacterial which is slow to respond to antibiotics. But the recurrent nature of pulmonary embolism is one of its most distinctive features, and involvement of now one lung, and then the opposite one is strong evidence in its favor. This point is worthy of note in differentiating it from pneumonia or myocardial infarction as neither one of these latter conditions recurs rapidly every few days.

Other clues to keep in mind are an unexplained fever, increased pulse and respiratory rates, especially in a bed patient; abrupt onset of dyspnea, associated with tachycardia and tachypnea out of proportion to the fever; the finding of localized chest tenderness or leg signs; recurrent episodes of syncope, especially when associated with dyspnea or chest pain or both; episodes of weakness and sweating; paroxysmal atrial fibrillation; refractory heart failure; repeated attacks of what are thought to be coronary occlusion occurring close together. And then, as a last point, the most common cause of fever or jaundice or both in a patient with congestive heart failure is pulmonary infarction.

TREATMENT

The prevention of thrombosis of the deep leg veins is the fundamental problem and is more important than its treatment. At the present time there are a number of measures employed to this end, and it is not definitely known which is the most effective. Any procedure or position conducive to blocking of the pelvic or leg veins should be avoided. Deep breathing exercises, active and passive leg exercises and early ambulation all benefit the circulation by preventing stasis and are of value. It must be remembered that early ambulation means that the patient be up on his feet walking (with assistance if necessary) as soon as possible, and not seated on the edge of bed with legs and feet dangling, as this actually impedes the venous return and encourages thrombosis. The wearing of knee-length elastic stockings routinely in all bed confined patients (medical and surgical) has been shown by Wilkins and Stanton [16] to reduce appreciably the incidence of fatal pulmonary embolism. The compression afforded by the stockings increases the linear velocity of blood flow in the venous channels and in this manner aids in preventing venous thrombosis. These measures are advisable in all postoperative, postpartal and bed-confined medical cases. The routine use of venous ligation or anticoagulants as a prophylactic measure in those patients undergoing surgery is open to question and not widely practiced. However, all cases prone to develop thromboembolic episodes should be treated with either ligation or anticoagulants. This would particularly apply to patients with acute myocardial infarction and those in congestive heart failure, confined to bed.

The treatment of pulmonary embolism and infarction is directed at (1) the emergency treatment of severe pulmonary embolism, (2) the relief of symptoms due to infarction, and (3) the prevention of further embolization.

The first few hours following severe pulmonary embolism are critical. There is widespread reflex contraction of the pulmonary vascular bed as a result of the circulatory reaction to embolism. Atropine sulfate intravenously in large doses (gr.-1/60) has been advocated to block vagal reflexes. Papaverine intravenously (gr. ½ to 1) alone or combined with atropine has a beneficial effect on dyspnea and is a pulmonary vasodilator. Oxygen by tent or mask in high concentration is of great value for the dyspnea and cyanosis, and morphine or meperidine (Demerol) is useful for its sedative and analgesic effect. The patient should be at absolute bed rest and instructed to avoid deep breathing, violent coughing and straining at stool in the hope of preventing another attack.

Pulmonary infarction often causes severe pleuritic pain which may be difficult to relieve. Paravertebral procaine block or local intercostal procaine infiltration affords the best relief. Codeine or meperidine (Demerol) may be used in small doses to avoid respiratory depression. Sedative cough preparations are given for hemoptysis, which at times may be profuse; anticoagulants are not contraindicated in the

presence of hemoptysis.[17] Administration of antibiotics is justified since infarcts occasionally become infected and progress to abscess formation.

The prevention of further embolization may be effected by venous ligation or anticoagulant therapy and the latter is the preferred method in most cases. Unless there is some contraindication, anticoagulant therapy should be initiated immediately and should consist of heparin alone or combined with either dicumarol or phenindione (Hedulin). The contraindications to anticoagulants are liver disease, renal insufficiency, bleeding diatheses, active peptic ulcer and ulcerative colitis. Heparin when used alone is probably best given as intermittent intravenous injections of 100 mg. at four to eight hour intervals the first day, and 75 mg. at eight hour intervals for the next two to three days. The patient is then ambulated. It is continued at 75 mg. at twelve hour intervals for two days, then daily for two succeeding days.[18] Protamine or fresh blood transfusion will combat bleeding from heparin, which is rare.

More commonly, heparin is given in combination with dicumarol or Hedulin, and then heparin is used for the first two to three days for its immediate anticoagulant effect and dicumarol or Hedulin is given simultaneously and continued for two to four weeks or until the patient is fully ambulatory. Both dicumarol and Hedulin have the advantage of oral administration, but Hedulin acts more rapidly (eighteen to twenty-four hours), produces a more uniform reduction in prothrombin concentration, and thus abolishes daily prothrombin determinations. The initial dose of Hedulin is 200 to 300 mg., in 2 equal doses twelve hours apart the first day and thereafter a daily maintenance dose of 50 to 100 mg. in 2 equal doses. Prothrombin determinations are done daily for the first three days. Thereafter they are done every seven to fourteen days, depending on the patient's response.

Although bilateral superficial femoral vein ligation was introduced several years before the anticoagulants it has became less popular recently, partly because of the frequency of subsequent edema, but, more important because it too often fails to accomplish its purpose. Anlyan and his associates [19] have pointed out that quite often there is thrombus formation proximal to the site of ligation with resultant embolization. This occurred in 5 of 7 patients of theirs treated with ligation and one of these died of fatal pulmonary embolism. These authors feel that if anticoagulant therapy is contradicted the inferior vena cava should be ligated.

Venous interruption, however, still has a place in the therapy of pulmonary embolism, and is employed whenever anticoagulants are contraindicated, or whenever they fail to control embolization. Surgical ligation usually signifies *bilateral superficial femoral vein ligation* at a point immediately distal to the profunda femoris vein. If thrombosis extends proximal to this site, then inferior vena cava ligation just proximal to the junction of the two common iliac veins is done. It is felt by some that ligation of the superficial femoral veins is becoming an unsound measure in ligation therapy [19,20] and that inferior vena cava ligation is a more suitable procedure. In certain conditions producing pulmonary embolism, ligation of the inferior vena cava is the procedure of choice, namely: postpartal period, suppurative pelvic thrombophlebitis, postoperative prostatectomy, combined abdomino-perineal resection.[21] Femoral vein ligation, in these circumstances, is obviously not feasible as the source of emboli is in the pelvic veins which empty into the inferior vena cava proximal to the site of ligation.

Pain and edema of both lower extremities occur quite frequently following inferior vena cava ligation. Long term care to combat these distressing symptoms consists of periodic leg exercises, elevation of the lower extremities at night, wrapping of legs and thighs during the day (with elastic bandages) and avoidance of a static dependent position for the lower extremities.[21,22] A recent adjunct to our armamentarium in the relief of pain, fever, and edema following inferior vena cava ligation is phenylbutazone (Butazolidine). This is

administered for five to seven days, 200 mg. three times daily for the first three days, then 100 mg. three times daily for the next two to four days. Symptoms of edema, pain, fever, and local tenderness begin to subside in two days.[23]

CASE REPORTS

The following case summaries illustrate the many aspects of pulmonary embolism and infarction:

Case No. 1: A. DB., 60 year old white male. February 1, 1958 - February 1, 1958. Patient had "flu" two weeks prior to admission, recovered and had relapse five days later. Been in bed since then. Has had pain and tenderness in right calf the past five months. At 2 A.M. on February 1, 1958, woke up feeling very weak and with a cold sweat, substernal discomfort and severe, acute dyspnea which was the predominant symptom.

Examination — Blood Pressure: 70/40; Pulse: 145-152/m (regular and feeble). Skin cold and clammy, ashen gray. Obviously dyspneic with apprehensive look. Heart tones distant with rapid, regular rhythm. P_2 equals A_2. Lungs—anteriorly and laterally normal breath sounds. Severe tenderness of right calf. Electrocardiogram: (Figure 1) deep S_1, Q_3 T_3 pattern of pulmonary embolism. Expired twelve hours after onset.

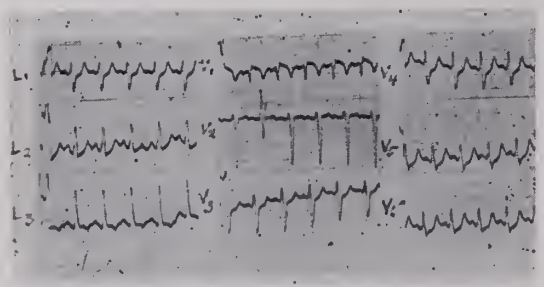


Figure 1.—(Case No. 1, A. D. B.) Electrocardiogram typical of massive pulmonary embolism. Note deep S_1, presence of Q_2 and Q_3 and inverted T_3, depressed ST segments in V_3, V_4, V_5, and V_6.

Comment: This patient had deep vein thrombosis of right calf for five months preceding fatal episode. He received no therapy for it. The first bout of pulmonary embolism was the fatal one. The symptom of agonizing dyspnea overshadowing chest pain is characteristic, although his family physician felt positive he had a myocardial infarction when he first saw him at home. The electrocardiogram is typical of massive pulmonary embolism and has significant differences from that of myocardial infarction, namely deep S_1, associated with Q_3 and inverted T_3, and change in the electrical position of the heart (Vertical shift).

Case No. 2: A. J. M., 16 year old white male—November 1, 1953, to November 10, 1953. Patient was in an auto accident four days prior to admission and injured his right knee. His right foot got cold and swollen and his right knee became painful. He developed tightness in the chest one day prior to admission, and was admitted for severe dyspnea, severe substernal tightness, and inability to move arms. These symptoms occurred suddenly at 8 P.M. on the day of admission. He collapsed and was taken to the hospital and given artificial respiration on the way. His blood pressure was 0/0; pulse unobtainable; heart tones distant; lungs clear. Begun on oxygen, papaverine and atropine, intravenously, and anticoagulants (heparin and dicumarol).

A chest film revealed prominence of the main pulmonary artery which diminished to normal size 5 days later. Electrocardiogram revealed deep S_1 Q_3 and inverted T_3. Second small embolus with collapse on November 3, 1953. At that time his lungs were clear, heart sounds normal except P_2 greater than A_2. Bilateral superficial femoral vein ligation was done and his pulse rate dropped from 100 to 60/m. He was discharged on November 10, 1953, and anticoagulants were continued for two weeks. At the present time the patient is well and at work.

Comment: This patient was rather young for massive pulmonary embolism and it resulted from a relatively minor traumatic episode. He had a second embolus two days after the first despite anticoagulants, and bilateral femoral vein ligation was done. He recovered and is well at present.

Case No. 3: J. D. K., 85 year old white female, January 20, 1958, to January 21, 1958. Patient was in a nursing home for several months, and had pernicious anemia which was under control with Vitamin B_{12} injections. Her complaints were lack of appetite, dyspnea, and change in general condition. Her blood pressure was 90/0; pulse irregular and weak, 110/m. Chest kyphotic. Heart sounds were distant with occasional premature contraction. Lungs revealed dullness on percussion at the right base, with fine and medium, moist rales at the right base anteriorly, laterally and posteriorly, with decreased breath sounds in the same area.

White blood count 18,800; 89% Neutrophils; Blood Urea Nitrogen 66 mg. %; Electrocardiogram revealed left ventricular hypertrophy; EPA of chest revealed infiltration throughout the right lung field. (Figure 2)

Patient expired on January 21, 1958, the day after admission.

Comment: This was an elderly female



Figure 2.—(Case No. 3, J. D. K.) This patient at autopsy had bilateral pleural effusion and multiple pulmonary infarcts throughout right lung.

living in a nursing home. She was very inactive most of the time and usually sat in a rocking chair all day. She gradually deteriorated as a result of multiple pulmonary infarcts and expired one day after admission to the hospital. There were multiple infarcts in the right lung with a right pleural effusion and pulmonary edema of the left lung.

Case No. 4: M. B., 68 year old white female, January 31, 1958, to March 23, 1958. Patient was admitted because of progressively severe dyspnea at rest and after exertion, of one to two weeks' duration. She had also been complaining of severe leg pains on exertion at the beginning, but later at rest also for the past few months. She has had hypertension of many years and also angina pectoris.

Her blood pressure varied from 125/70 to 180/110, and pulse 64/m. She had no cervical vein distention. Her heart was enlarged to the left with regular rhythm and apical grade II systolic blowing murmur. No palpable liver. Minimal pitting edema of the legs with absent dorsalis pedis and posterior tibial pulsations bilaterally. Calf tenderness was present bilaterally and was more marked on the left side.

She was digitalized with no improvement, and during the first week in the hospital, she experienced three bouts of syncope. The dyspnea continued unabated and she developed left anterior chest pain with localized rales over the same area.

X-ray film (Figure 3) revealed fluid in the left



Figure 3.—(Case No. 4, M. B.) EPA of chest on admission, February 1, 1958.

pleural cavity. She was begun on anticoagulants, heparin and hedulin, and showed slight improvement. A few days later she developed pain in the right lower anterior chest, which was worse on deep breathing. X-ray film (Figure 4) revealed



Figure 4.—(Case No. 4, M. B.) Left pleural effusion present after first pulmonary infarct on left side, February 21, 1958.

fluid in the right pleural cavity. Two right thoracenteses were done with removal of 300 to 500 ml. of bloody fluid each time. Bilateral femoral vein ligation was done, and she became slightly more comfortable, but was still dyspneic. Because

of continuance of symptoms, an inferior vena cava ligation was done, and a striking improvement in dyspnea and tachypnea was noted. (Figures 5 and 6) A few days later she was ambulated, elastic



Figure 5.—(Case No. 4, M. B.) Bilateral pleural effusion, the left one subsiding, but a large amount of fluid is present in the right pleural cavity, March 3, 1958.



Figure 6.—(Case No. 4, M. B.) Right pleural effusion decreased in amount after two thoracenteses, March 18, 1958.

stockings were applied, and at present she is in good health. Her total hospital stay was seven and a half weeks.

Comment: This patient was originally thought to be in congestive failure. The syncopal attacks and calf tenderness alerted the clinician to the possibility of phlebothrombosis and pulmonary embolism which was confirmed later by the physical findings of pulmonary infarction in the left lung with pleural fluid, then a few days later fluid on the right. Digitalization had no effect on her course. She did not improve appreciably on anticoagulants or bilateral superficial vein ligation or thoracenteses. Because of this an inferior vena cava ligation was done and her subsequent improvement was dramatic.

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IMPORTANCE TO PATIENT CARE OF A MEDICAL EDUCATION PROGRAM IN NONUNIVERSITY AFFILIATED HOSPITALS *

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The basic philosophy underlying any medical education program in a nonuniversity affiliated hospital is to provide for the House Staff continuing educational facilities which will adequately equip them to apply more intelligent care to the patients in the hospital. The demand for this scientific training by the House Staff is simply predicated on their need of this progressive knowledge to provide for the adequate care of the patients entrusted to them. The motivating force behind the efforts and interest of the Visiting Staff is their need for intelligent assistance and scientific service for their own individual patients whose very lives are their personal responsibility.

It is obvious that good patient care is entirely dependent upon the quality of these two important functions: namely, the demand and need of the Visiting Staff for medical service to their patients, and the demand and need of the House Staff for continuous, effective, adequate and desirable training. The latter provides the House Staff with the necessary proverbial tools to effectively perform their most important function of ably assisting the Visiting Staff in the many problems involved in rendering good patient care. These two seemingly diametrically opposed objectives are not opposing forces; but actually are supporting forces. Certainly the demand for service and the demand for education must be met, equally and continuously, for the sole reason that improvement in one necessarily improves the other. The thorough comprehension of these two basic facts, by all partners concerned in the providing of medical care to their patients is absolutely essential. The intelligent, cooperative effort of all proponents of any organized program will provide the necessary studies and ultimate solution to the problems of effective administration of a desirable medical education program, absolutely necessary to good patient care.

When one investigates the history of previous endeavors, both the success and failures, by nonuniversity affiliated hospitals to facilitate medical education programs, one conspicuous thread is evident throughout the fabric of their administration; and that is the purpose for which the program was instituted. When the purpose: improvement in patient care, was foremost in the minds of all participants, the program has usually been successful. When the purpose of improvement in patient care was lost sight of, and other factors motivated the program; namely, elements such as personal aggrandizement, pride, envy, and other deleterious emotional factors, utter failure resulted.

MEDICAL EDUCATION VS. MEDICAL SERVICE

Dr. John C. Leonard,[1] Director of Medical Education at Hartford Hospital, Hartford Connecticut, makes the following

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pertinent observations: "Any sound program for graduate training in the non-university hospital obviously must function effectively from several different viewpoints. (1) It must function effectively from the viewpoint of those who are receiving the training, else it will die a natural, even though painful death. (2) It must function effectively in constantly improving patient care, else its entire structure will prove to be a sterile one. (3) It must function effectively in its role of stimulation of the hospital's attending staff, or it will have fallen far short of its goal. (4) It must function effectively for the greater hospital and community medical good, or the hospital administration and its Board of Directors will not be able to countenance the added cost of the program to the hospital and its community."

As stated by Dr. William J. Lahey,[2] Director of Medical Education at St. Francis Hospital, Hartford, Connecticut: "The demand for interns is becoming greater and greater. The Federal Service and the Medical School Hospitals have relative success because of the improved caliber of training and salary, by the former; and the fact that graduates continue to feel that the latter offer the highest quality of training. These factors have excited the criticism that these hospitals are monopolizing graduates and that the latter are oversold on the 'prestige factor' and do not receive a well-rounded internship. The fact remains, however, that an atmosphere of education and investigation continues to be the most powerful attraction year after year."

Dr. Harold Jeghers,[3] Professor of Medicine at Georgetown University, has contributed a vitalizing treatise as follows: "One hears statements like this: 'Our primary concern is to the patient,', or, 'Medical education, medical research is all right, but our first duty is to the patient!' At first glance this seems like a wonderful thought to have! The point which is overlooked is that without current medical education, the patient receives 1940 care in 1958. There is just no way patients can get good care unless education goes on. What was 'good care' last year may not be good care this year. The basic premise is that those hospitals with good medical educational attitudes and facilities automatically secure better care for their patients. With continuous education, any physician practices better medicine.

"Essentially, hospitals exist to provide medical care and nursing service not possible nor practical at home nor by ambulatory care directed from a physician's office. Patients are unaware of the enormous ancillary activities which are needed to make this care possible." Regardless of who supplied the patient's care, it is ultimately the responsibility of the patient's physician. In the public mind, he is responsible; he is the source from which their healing comes; he must not fail his responsibility. His interest in medical education and scientific activity in the hospital is his only source of authority which is so necessary in complementing this responsibility.

HOUSE STAFF TRAINING AND GRADUATE STUDY

Of what value is a hospital medical education program to the members of the Visiting Staff of the hospital? Dr. Jeghers also gives an explicit answer to this question:

"Physicians commonly get caught in the whirl of an active practice and find it increasingly difficult to keep abreast. Yet one of the most certain things about the practice of medicine is that its basic concepts are continually changing. One must move along with these changes. To remain stationary, is to fall behind. There is a great need in this country for the development of mechanisms whereby a physician can do continuous post-graduate work throughout his professional career."

The following is a paraphrase of the three points Dr. Jeghers proposes as the means by which the practicing physician can obtain post-graduate medical education:

1. Reading gives one a fair concept of new things, but no intimate, practical de-

tails nor the skill to perform any intricate procedures.

2. Post-graduate courses are expensive in time and money. After days of lectures, one's grasp of the subject is limited by cumulative fatigue.

3. Post-graduate daily study and teaching in one's own hospital staff activities, with his colleagues and friends in medical education programs from year to year is most inviting and desirable.

The advantages of this third avenue of study are obvious to all of us. Medicine in its broadest sense can be broken down into three components: The first is finding new facts — medical research. This may be basic science research, clinical research, or it might be the everyday research doctors do constantly by evaluating something in terms of their own experience. The third component is the practice of medicine. The reason for finding these facts is to apply them to the care of the patient throughout the practice of medicine. It is almost impossible, however, for the busy practitioner to sort out the practical procedures he needs from the highly technical basic scientific research and apply them to his patients. Therefore, the second component (which links medical research to medical practice) is the intermediary role played by medical education. This intermediary role, played by medical education, is the one place wherein all three phases may be joined daily in study and teaching, each contributing a part of its own intellect and experience to the other's problems, and the solution thereof. Actually, its function is to transmit basic information to the research students, graduate students and practitioners of medicine in an understandable fashion.

Certainly the aforementioned foundation stones of a Medical Education Program must be provided in order to acquire an adequate superstructure, but, unless the adequate superstructure is carefully planned, the foundation stones alone will not of themselves create a practical and serviceable edifice.

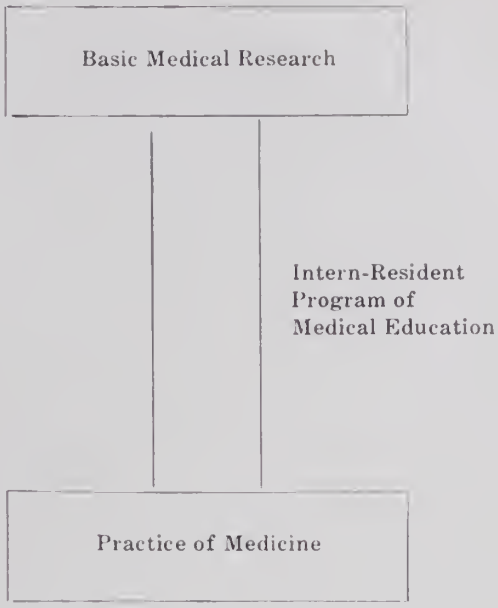


Figure 1

HOUSE STAFF POSITIONS AND AVAILABLE PERSONNEL

One criticism pointed out by Burgess and Leonard,[4, 5] which has been repeatedly made against many well equipped nonuniversity affiliated or community hospitals is that these institutions heretofore have employed physicians from both United States and foreign medical schools, as interns and residents, exploit them for their services alone, and give them no real training in return. Furthermore, many of these hospitals do not even have any instruction or formal supervision for the interns and residents that they do obtain. That this criticism is still true, in some areas, there is little doubt. Much needs to be done in these areas to solve the existing problems which excite this criticism.

Realizing the attraction that medical education[6] exerts in obtaining sufficient house staff personnel to provide adequate patient care, it is indeed gratifying to see hospital administrators and the attending medical staffs cooperating and coordinating their efforts in time and money to build attractive and desirable medical education programs in their respective hospitals. The majority of the nonuniversity affiliated or community hospitals have come to realize that unless they pro-

vide a desirable medical education program for their interns, their chances of obtaining interns in the future are very faint indeed. They well understand that a vital progressive educational program for interns provides an excellent preparation for residency training in the same hospital or a parent accredited institution. Furthermore, it is a generally accepted fact by all partners interested in medical education, that there in one individual, and only one individual, who can attract prospective interns to apply for internship in a given hospital. That individual is the intern who is fully satisfied with the training he is receiving or has received. His satisfaction and his recommendations are directly proportional to the character and quality of the training program administered by the hospital.[7]

The fact remains, however, that many well equipped nonuniversity affiliated or community hospitals with desirable and attractive medical education programs are unable to obtain House Staff personnel of the caliber and in the numbers required for good patient care.

Burgess and Leonard [4, 5] point out that in the New England states and in general, throughout the rest of the United States, the nonuniversity affiliated hospitals (more properly termed community hospitals) take care of four to five times more patients in a given community than university affiliated hospitals. It seems paradoxical to them that nonuniversity affiliated hospitals have decreasing numbers of American medical school graduates as interns and residents, while each year finds increasing numbers of medical school graduates remaining under the maternal wing of the university hospital of their own or another medical school. They also state that it has been admitted by some medical school faculty members who are also chiefs of their respective services in university hospitals, that they have increased their quota of interns, so that if they fail to secure a maximum number, they may continue unhampered because they still secure an adequate number of interns. Those who spend a considerable amount of time in university as well as nonuniversity hospitals, feel that most university hospitals are overstaffed and most nonuniversity hospitals are understaffed.

However, here in Louisiana, the trend appears to be in still another direction. We find that between 40 and 60 per cent of medical school graduates do not remain with their parent university affiliated hospital. The hospitals of the United States Army, the United States Navy, the United States Public Health Service, Federal Security Agency and Veteran's Administration are becoming increasingly more attractive to American medical graduates. It is becoming increasingly apparent that the majority of the graduates are already married at the time of graduation or very soon thereafter. In most instances, their family responsibilities demand that salary, in addition to training, be an important consideration. Notwithstanding this fact, we know that salary should not be the motivating factor, at the sacrifice of his training which he also sorely needs.

FOREIGN MEDICAL SCHOOL GRADUATES

Physicians who are graduates from foreign medical schools, have been employed extensively by hospitals throughout the United States to help fill the need for House Staff personnel.[8] Some of the foreign interns presently accepted will no longer be available to us because of the realistic ruling by the Council of Medical Education and Hospitals of the A.M.A. disapproving prospective foreign interns, until they pass a satisfactory language examination, in addition to qualifying tests as to their medical education and medical background.

A recent communication from the executive secretary of the National Intern Matching Program, Inc.,[9] states the "New Policy Regarding Foreign Student Participation" as of May 2, 1958, to be as follows:

"Graduates of foreign medical schools wishing to enroll in the 1959-60 matching program must be certified by the Educational Council for For-

eign Medical Graduates. Hospitals enrolled in the National Intern Matching Program are **not to offer** internship appointments to non-participating foreign medical school graduates until after the matching program results are announced on March 16, 1959."

This screening procedure, when fully implemented, will insure a source of the better qualified applicants for training. Many nonuniversity hospitals are now endeavoring to acquaint the top English speaking foreign graduates with their training facilities. The foreign schools are now in the process of improving their educational facilities in order to improve their standards. They would desire their top graduates to study in the hospitals with well organized training programs in the United States, and, upon completion of their training, to return to their parent institutions as teachers.

INTERN TRAINING IN COMMUNITY HOSPITALS AND RESIDENT TRAINING IN UNIVERSITY HOSPITALS

One question which has excited considerable interest over the years is as follows: What other studies are in progress to help the nonuniversity affiliated hospitals with their problems involved in obtaining adequate House Staff personnel from United States medical schools to administer good patient care?

The House of Delegates of the Louisiana State Medical Society, at the request of the members of the House of Delegates from the Orleans Parish Medical Society, is now studying this problem in cooperation with medical schools and other interested bodies both on a local and national level. A brief of the proposition submitted for study may be best understood if it were recorded here as originally presented:

SENIOR MEDICAL STUDENTS IN "CLINICAL CLERKSHIPS"

"One of the most important problems facing the administrators and Medical Staffs of the nonuniversity connected hospitals in the State of Louisiana, is their inability to attract interns and residents of the caliber and in the numbers needed, to provide the essential service in a carefully planned and well organized House Staff training program in keeping with good patient care in their respective hospitals. This is not an unpleasant temporary situation, but one that grows increasingly more serious from year to year in hospitals throughout the United States. The magnitude of this problem is well emphasized by the 1953 report of the Council on Medical Education and Hospitals of the A.M.A.[10] This report emphasizes the fact that in 1940, there were approximately 12,000 interns and residents on duty and very few, if any, internship and residency positions unfilled. Conversely, today, more than 25 per cent of all House Staff positions are unfilled. An even greater number of House Staff positions in nonuniversity connected hospitals remain unfilled. This situation exists in spite of the fact that the available number of interns and residents on duty has risen from 12,000 to 24,000 since 1940. Obviously, it is impossible for these 24,000 to fill the approximately 32,000 to 36,000 positions now open for House Staff service. Many factors influence this picture, but the principal cause producing this shortage of interns and residents is the longer period of training that has become necessary to meet the added demands of medicine, surgery and their respective specialties.

"Considerable literature and research have accumulated in the last few years on this subject. Special emphasis has been placed on the solution to this problem. Organized medicine has rendered considerable aid in suggestions for improving medical education programs in nonuniversity connected hospitals to make their hospital a more desirable place for intern and resident training. However, the challenge to these nonuniversity affiliated hospitals to meet the competition presented by the university connected hospitals would require a great outlay of money for a Medical Education faculty and other facilities to match those provided by a university connected hospital. An excellent training program, conducted by the Visiting Staff for interns, can be easily supplied in most nonuniversity modern hospitals. This type of training

program must be supervised by an individual especially trained in Medical Education.

"Exciting the most interest at this time among the medical profession [11] is the proposal that the university connected hospitals avail themselves of the proposition through which the medical students from their affiliated university would act as "clinical clerks" in the hospital and actually do the work which heretofore has been done by interns. They are designated as "clinical clerks" and reside in the hospital as the present interns do, rotating by means of the "block system" or any appropriate rotation system as presently used for interns. This will make it possible for the medical schools to afford added practical experience for their senior students; and, furthermore, for the university connected hospitals to place emphasis on their residency educational programs. The nonuniversity affiliated hospitals would then place emphasis on their intern medical education training programs. The latter group will receive excellent intern training in the nonuniversity associated hospitals which can easily facilitate an excellent intern educational program. Under the supervision and training in a well organized intern training program conducted by the hospital Visiting Staff, the excellent quality of the intern training will put them in a desirable position to compete for subsequent residency training in the university affiliated hospitals.

Two important facts immediately become evident:

1. The university connected hospitals would save considerable money in salaries to interns.

2. The medical schools will necessarily have to operate on a year round basis, using the "block" or other systems for vacation periods, etc., etc.

"It has been emphasized repeatedly that this proposal has been considered for many years and is not, at this time, too revolutionary to receive proper study. It is perfectly possible that this adjustment can be made gradually, so that all pitfalls and radical changes and modifications be carefully considered during the process of evolution in medical education.

"It is a general feeling that, should this proposition receive the proper study, investigation and consideration by all partners concerned in medical education, a reasonable and practical solution will result."

Already some of the many administrative bodies are actually engaged in this study. Certainly the above solution may not be final at all. Especially difficult would be the task that the State Boards of Medical Licensure would have to integrate such a program within the framework of the Medical Practice Act of their respective states. However, this solution, if desired, can be more easily implemented wherein the parent university completely controls, as if by ownership, the affiliated hospital in which their students are taught.

Since we all agree that all sick people need and should have good patient care, it follows that the one single objective of all partners in medical education is ultimately the building of facilities needed in healing of the sick individual. When all the individuals and groups of administrative bodies and medical schools attack the problem in a dynamic and cooperative manner, a sound and desirable solution is usually forthcoming.

SUMMARY

1. One of the major problems facing the administrators and attending staff members of nonuniversity affiliated hospitals (more properly referred to as community hospitals) is their inability to obtain house staff personnel of the caliber and in the numbers needed to render the service necessary to good patient care.

2. An atmosphere of medical education and clinical investigation in the nonuniversity hospitals continues to be the most powerful attraction to prospective house staff personnel from year to year. However, we must continue to recognize the attractions of material assets, such as

salary, living quarters, food, etc.

3. The value of a well organized, carefully planned, and ably executed medical education program to both house staff personnel training and attending staff post-graduate daily study is emphasized.

4. Thusly, the demands for service and the demands for education and clinical investigation must be equally satisfied if good patient care is to be achieved. In fact, the providing of educational and clinical investigation programs demands paramount consideration.

5. The number of graduates of foreign medical schools available for house staff service will be limited by a recent ruling of the National Intern Matching Program, Inc.

6. Organized medicine, on the local and national levels, in cooperation with medical schools and their affiliated hospitals, should continue its efforts with the administrative bodies of medical education and hospitals in the study of this house staff problem and its ultimate solution.

7. One such study of the use of senior medical students as "clinical clerks" in respective university affiliated hospitals is in progress.

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DIURIL*—A NEW ANTIHYPERTENSIVE DRUG

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This study consists of observations on 22 cases of essential hypertension. The majority of these patients were seen in the Out Patient Hypertension Clinic at Charity Hospital and the remaining ones in our own private practice. Negro and white patients of both sexes comprised our study group. These patients were observed at weekly intervals for a period averaging 4.2 months. All of these patients had been followed for several months to several years prior to their selection for the study. The blood pressure levels and the normal variations of these levels in individual patients were, of course, known to us. This group fulfilled the criteria for essential hypertension, and the evidence for irreversible renal and vascular damage was lacking in all cases. Diuril alone was used in this study, some cases receiving as much as 1500 mgms. daily for several weeks.

A breakdown of our cases may be seen in Table 1.

TABLE 1
TOTAL 22 CASES

Race and Sex	W.M.	W.F.	C.M.	C.F.
No. of cases	2	5	5	10
Average age	37	46	32	43
Average B.P. pre Diuril	195/103	154/112	185/125	215/146
Average dosage mgm/24 hr.	750	750	1400	1225
Average duration of therapy in months	3½	5½	3	4

Hypertension Clinic, Louisiana State University Medical School Unit of Charity Hospital of Louisiana at New Orleans.

*Merck Sharp & Dohme.

In 3 cases an initial response varying from 20 to 40 mm.Hg. systolic and from 10 to 40 mm.Hg. diastolic was seen. One of the 3 cases failed to maintain a response; another had a slight sustained reduction of blood pressure levels of 20 mm.Hg. systolic and 40 mm.Hg. diastolic; the other had a sustained reduction of 60 mm.Hg. systolic and 10 mm.Hg. diastolic.

Our observations on the use of Diuril as a hypotensive agent have led us to the conclusion that there is no consistency in its hypotensive effect. In the vast majority of instances no appreciable blood pressure lowering was noted. Where there is some diminution in blood pressure levels, it has been our impression that there is an associated diuretic effect in a patient with fluid and sodium retention.

Diuril proved to be an excellent diuretic in our experience in patients with fluid retention, not only in this series but in other cases in whom we have used the drug for its diuretic effect. In this series no toxic effects from Diuril were noted.

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DIABETES AND PREGNANCY *

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INTRODUCTION

The purpose of this paper is to present the results of our recent experiences at Charity Hospital in New Orleans in the management of the diabetic who becomes pregnant, and to re-emphasize some of the special problems encountered in her care. It is well known that the fetal mortality and complications seen with diabetes increase with the severity of the disease. Therefore, in order to compare experiences with other clinics, some form of classification of the severity of diabetes is necessary.

White's classification (Table 1) is, by and large, the most suitable at this time, although it does not take into account the amount of insulin required, or the ease or difficulty with which control is maintained. Both of these factors, I feel, are important not only in grading the severity of the disease, but also as an aid in formulating some sort of prognosis in the gravid diabetic. This report concerns 50 consecutive diabetics admitted to the labor room, and covers a period from July 1956, through February 1958. Table 2 shows the diabetic severity and fetal mortality of the group. The number of cases in Classes A and D are so small as not to be significant. Ten to fifteen years ago, pregnancy complicated by diabetes was a fairly rare condition. With improved care from the obstetrical point of view, and better medical management as well as pediatric care in the neonatal period, more and more women with diabetes are able to conceive and successfully have families. This is bound to be reflected through the years by an increased number of women who have latent as well as overt diabetes in the childbearing years. This was graphically brought out by Adams [4] who reported that in one hospital

TABLE 1.
CLASSIFICATION OF DIABETIC PREGNANCY

Class	Severity
A	Requiring no insulin and little dietary regulation
B	Onset after age 20; duration less than 10 years
C	Onset between ages 10 and 19; duration between 10 and 19 years
D	Onset before age 10; duration 20 years or more
E	X-rays demonstrate calcification of pelvic arteries
F	Complicated by nephritis

TABLE 2.
FETAL MORTALITY AND DIABETIC SEVERITY

Class	No. cases	Fetal deaths No.	Fetal deaths %
A	2	1	50
B	34	9	26.5
C	12	6	50
D	2	1	50

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, in Shreveport, May 6, 1958.

in a ten year period from 1941-51, only 50 diabetics reached twenty-eight weeks' gestation or more. In the next year, however, there were 22, and in the next two years an additional 29. Thus, in a period of three years, more diabetics reached at least twenty-eight weeks of pregnancy than there had been during the previous ten years.

COMPLICATIONS

FIRST TRIMESTER

Diabetes may become manifest at any time during pregnancy. At each visit, it is mandatory that the urine specimen be tested not only for albumin but sugar as well. In the present series, there were 18 women diagnosed for the first time as diabetic during this pregnancy. All 18 were picked up because of glycosuria sometime during their pregnancy, and the diagnosis confirmed by glucose tolerance tests. The earlier diagnosis is made and the sooner the patient presents herself for care, the better the chances will be for a successful outcome. Pedersen [5] has shown that fetal survival is three times better when the diabetic is seen relatively soon after she becomes pregnant. In his series, patients who were seen early in pregnancy had an 11 per cent fetal mortality. Those who came in for their initial visit later had a fetal mortality of 36 per cent.

Abortion. It was thought for many years that patients with diabetes were more apt to have early abortion. Some authors today, and most textbooks, state that early fetal wastage is higher in the diabetic than the nondiabetic group. The 50 women in this study had 267 conceptions with only 34 abortions, a rate of 12.7 per cent. This is no greater than that experienced in the population at large, so that I would agree with those who maintain that the abortion rate seems to be no higher in the diabetic than in uncomplicated pregnancies.[3-6]

Carbohydrate Tolerance. During the first trimester, a change in carbohydrate metabolism is to be expected. Usually sugar tolerance decreases causing a need for more insulin, but rarely the converse may be true. Many diabetics become labile during pregnancy, and require constant watching to prevent acidosis on the one hand and insulin shock on the other. Should nausea and vomiting occur during this time, the patient must be watched very carefully. Ketosis and acidosis are extremely hazardous during any phase of gestation. The leading cause of maternal death in diabetes is still acidosis. It is mandatory that these patients be hospitalized and regulated promptly.

SECOND TRIMESTER

It is during this period that the basal metabolic rate begins to increase, and there may be a need for more carbohydrate in the diet. At about the fourth or fifth month, the renal threshold for sugar begins to decrease. To keep the urine free of sugar at all times is not only difficult, but such rigid management often causes the patient to become restless, tense, and discouraged. If allowed to spill a little sugar occasionally, she feels better and is happier. This implies that a little leniency in management is indicated, but by no means should all controls be cast aside. It is in the second trimester that the carbon dioxide combining power of the blood decreases, making acidosis more likely. The patient should be seen every week so that any changes in sugar tolerance may be discovered early. Because of the lowered renal threshold for sugar, and the decreased carbon dioxide combining power of the blood, acidosis may develop much more rapidly than in the diabetic who is not pregnant.

THIRD TRIMESTER

The third trimester is usually associated with the most difficult complications and decisions. We know that, for some reason, the blood vascular system in the diabetic seems to age more rapidly than that of the nondiabetic. Just as surely, it also follows that the placenta in most diabetics seems to age prematurely. Many of these placentas are large and have both old and fresh infarcts as well as scattered deposits of calcification. None of these changes are specific for diabetes; however, they seem to occur earlier in women with this disease. Although many detailed studies in histopathology and physiology of the pla-

centa have been carried out, we still know next to nothing concerning these fundamental changes. It is possible that this premature aging can explain many of the late complications of diabetes such as the tendency to develop toxemia, hydramnios, and death in utero.

Polyhydramnios. Polyhydramnios is noted more frequently in the diabetic pregnancy. There was a clinically significant increase in amniotic fluid above normal in thirteen of our patients (26 per cent). This is higher than the usual estimate of 15-18 per cent. One patient was successfully tapped six times because of extreme distention, and went on to deliver uneventfully two weeks later. Another patient that had to be tapped once at thirty-two weeks went into spontaneous labor, and delivered a 5 lb. 3 oz. infant which was stillborn.

Toxemia. There is a definite tendency for the diabetic to develop toxemia. Our usual incidence at Charity Hospital is around 18 per cent. The incidence in this series was 38 per cent, or double that usually seen. This seems to be true over most of the country; however, the incidence of toxemia in a private series and in the north is much less. Why women with diabetes have a tendency to develop toxemia more frequently has never been answered. Perhaps it is related in some way to the concept of premature aging of the placenta.

Large Baby. It is a well known fact that diabetic and prediabetic women tend to have large babies. The cause of this phenomenon is still obscure, but does not seem to be related to hyperglycemia. Many prediabetic women have large babies with no evidence of hyperglycemia during pregnancies which antedated the development of diabetes. Snyder [8] and Hoopes [9] have shown that injections of pituitary gonadotropes in animals cause an increase in fetal weight at term. It seems evident that diabetes is a disease which not only involves the pancreas, but also is associated with a general endocrinopathy in which many glands of the body are involved, particularly the pituitary and the adrenals. These fetal giants are fragile and do not tolerate even minor degrees of trauma during labor and delivery. Difficult delivery of a large fetus through the birth canal is still one of the major causes of fetal loss. In this series, there were 18 babies weighing over 4,000 grams, with a loss of 8 or 44.4 per cent. There were 5 cases of shoulder dystocia with 3 intrapartum deaths, 1 Erb's paralysis, and 1 apparently unaffected infant. It seems probable that cesarean section would have circumvented the 3 intrapartum losses and prevented the brachial plexus palsy.

The radiographic demonstration of the presence of the distal femoral epiphysis, as pointed out by Adams,[4] eliminates much of the danger of prematurity. The real problem is that of the oversize infant which often is not recognized, and therefore not treated as it should be. It still is difficult to estimate accurately fetal size in utero. The presence of a large baby is often suspected, but the frequent association of polyhydramnios makes clinical evaluation of fetal weight no more than a guess. The need for more accurate methods with which to estimate fetal size is a very great one, and traumatic deliveries might thus be prevented. It is imperative that all of us who do obstetrics be thoroughly acquainted with the early recognition of shoulder dystocia and the methods available for overcoming this most serious complication.

Death in Utero. The risk of sudden unexplained death in utero is a very real hazard after the beginning of the thirty-eighth week of gestation. Again, the etiology of this occurrence is probably best explained by the concept of premature aging of the placenta. Planned early delivery from the thirty-fifth through the thirty-seventh week has greatly improved fetal outlook. Even so, many patients are still allowed to go beyond thirty-eight weeks, or even longer. In this series, there were 7 spontaneous deaths in utero in 25 patients who went to thirty-eight weeks and beyond, or an incidence of 28 per cent. To be faced with the decision of early delivery accompanied by the chances of prematurity, or risk the ever present threat of sudden death in utero, at times taxes the judgment of the obstetrician to the utmost.

Management. It is our policy, whenever possible, to admit these women at thirty-five weeks gestation. Up to this time, they have been followed in the out-patient clinic for special obstetrical problems. Our patients represent the indigent of Louisiana and, unfortunately, many of them do not seek help until very late in pregnancy. Their diets and insulin requirements are carefully regulated. Any anemia present is corrected, and the patient is gotten into the best possible condition before delivery. If, after stabilization in the hospital at thirty-five weeks, there is (1) no evidence of toxemia, (2) if the diabetes is under control, (3) if there is no evidence of hydramnios, (4) and if the baby is not excessively large, they are followed another week. Close watching and frequent evaluations are of the utmost importance during this time. If at any time from the thirty-fifth week through the thirty-seventh week, the diabetes gets out of control, the patient develops toxemia or hydramnios, or the infant becomes excessively large, delivery should be carried out. If all these criteria remain favorable, the patient is watched to the thirty-eighth week, at which time pregnancy is terminated.

Delivery. Approximately twenty-four to forty-eight hours prior to delivery, the patient is placed on divided doses of regular insulin in preparation for labor or cesarean section where dietary intake is limited. A sterile vaginal examination is done, and if the cervix is ripe, the pelvis adequate, and the head engaged, the membranes are stripped and ruptured, slowly draining off as much fluid as possible. Pitocin drip is given with the usual precautions. If, on examination, the cervix is not ripe and the patient not easily inducible, a cesarean section should be done. The section rate in these 50 cases was 14 per cent, which is probably too low.

After delivery, regular insulin is continued until requirements again become stable. Fully 75 to 80 per cent of patients improve their sugar tolerance in the immediate puerperium. The usual antepartal dose of long acting insulin will cause frequent episodes of shock. For this reason, frequent smaller doses of regular insulin are continued until carbohydrate metabolism again becomes stable.

Newborn. The newborn infant must be watched very carefully, especially during the first three days of life. These babies, many of whom are large and healthy appearing, have a tendency to behave much like prematures. They are sluggish and tend to be lethargic, and thus prone to develop anoxia. The rate of hyaline membrane disease is increased. They should be kept in a humidity controlled incubator, and stimulated often to cry and breath deeply. Hypoglycemia is no longer felt to play a part in the neonatal death of these babies. They should, however, have all the specialized care and attention of the most delicate premature infant.

Hormones. Any mention of the use of female sex hormone preparations has been omitted since none of these patients were given such therapy. There is still a great difference of opinion over the country as to the benefit derived from their use. Most obstetricians feel that endocrine therapy is not necessary. However, Priscilla White has presented evidence that they may be of value. In her earlier series without their use, the fetal mortality was 11 per cent.[1] In her later work in which hormones were used, the fetal mortality was 10 per cent.[2] In all fairness, it must be pointed out that the first series was done before her classification of the severity of diabetes, thus the two groups may not be comparable as far as having the same numbers of severe diabetics. If she could run another comparable series, giving the same meticulous individual care which is possible in her clinic, but without the use of hormones, then the problem would probably be solved once and for all.

CONCLUSIONS

The experiences at Charity Hospital in New Orleans over a twenty month period in the management of 50 consecutive pregnant diabetics have been presented.

The fetal mortality was 34 per cent with no maternal deaths.

The complications in each trimester, and variations in physiology have been dis-

cussed. It is felt that improved fetal salvage does not depend on any one technique or idea, such as the use of hormones or routine section at thirty-seven weeks. Best results are obtained by exercising meticulous care starting early in the antepartal period, coupled with careful medical and obstetric judgment through labor and delivery to be followed by detailed pediatric care through the neonatal period.

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EVALUATION OF GLUCOSE OXIDASE IN URINALYSIS

The qualitative determination of the presence or absence of glucose in the urine has long been a necessary part of every urinalysis. The methods in clinical use have been those of copper reduction, such as Benedict's and Clinitest. Under certain circumstances other substances appear in the urine which reduce copper, with the result that some uncertainty develops as to the interpretation. In many instances, the physician has come to regard a reaction recognized as a trace as probably being without clinical importance. Such findings and deductions render difficult satisfactory screening of patients in a systematic attempt to determine whether glycosuria exists or not.

In recent years the importance of diabetes has increased greatly in proportion to other diseases. This is true not only from the point of view of establishing a satisfactory treatment regime at the earliest possible time, but also, for the necessity of recognizing it in some of its various hidden forms. Consequently, a method of testing glycosuria which is specific for glucose is of great value.

Filling this need are two preparations commercially available, utilizing glucose oxidase, in urinalysis for qualitative determinations. These are available under the names of Tes-Tape and Clinistix. They have been in use for a sufficient time to be able to judge their value in comparison with the several methods previously available.

Reports by several investigators show that the glucose oxidase technique is specific for glucose, qualitatively accurate, and simple to perform. Several reports also show that the copper reduction methods, of which Benedict and Cinitest are examples, are less sensitive than the oxidase. Chertack [1] reported on over 1000 random specimens of urine collected from more than 500 patients in all trimesters of pregnancy, which were tested by the Clinitest and the glucose oxidase methods. Specimens which gave a positive reaction with any test were further studied by Benedict's, yeast fermentation test, osazone, Seliwanoff's test for fructose, Tauber's test for pentose, Escherichia coli treatment for lactose, and paper chromatography. With this accurate determination of the presence or absence of glucose in the urine, it was found that 196 urine specimens contained a reducing substance. Of these, in 135 samples that substance was glucose. From among the 135 proven to contain glucose, 134 were positive by the Clinistix method; 127 by Tes-Tape; and 30 by Clinitest; and 113 by the Benedict test. The remainder of the 196 specimens that contained some reducing substance, that is, 61, which did

not contain glucose also gave a positive reaction with the Benedict test. Accordingly, approximately one-third of the specimens of urine reacting positively with Benedict's did not contain glucose.

The sensitiveness of the oxidase method can be judged by the observation of Chertack that positive reactions occur in concentrations of glucose ranging from 0.01 per cent to 0.1 per cent, depending upon the amount of inhibitory substances present. This is to be compared with reactions which are positive between 0.15 per cent and 0.2 per cent, respectively, obtained with Benedict's and Clinitest methods. It is apparent that the glucose oxidase method is more sensitive and more specific for the detection of urinary glucose than are the copper reduction techniques. Their use, however, in quantitative determinations has not been reported as satisfactory because in some instances urines containing as much as 2 and 3 per cent glucose gave the same intensity of reaction as that obtained with 0.5 per cent glucose.

The clinician, therefore, has available a test which is specific and sensitive. When a positive reaction has been obtained the need exists to evaluate each patient individually and determine the significance of glycosuria in that case. Glucose oxidase tests are a valid screening method for the detection of urinary glucose and as such should be beneficially utilized by the profession.

[1] Chertack, Melvin M.: Detection of glycosuria in pregnancy; comparative study of glucose oxidase and copper reduction techniques, J.A.M.A. 106:48 (January 4) 1958.

[2] Leonards, Jack R.: Evaluation of enzyme tests for urinary glucose, J.A.M.A. 163:260 (January 26) 1957.

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DIABETES DETECTION WEEK

The second week of November will be, as for some years past, Diabetes Detection Week. This is a commendable undertaking. It is sponsored each year by the American Diabetes Association, a national organization devoted to the problems of diabetes, in which the membership is limited to physicians. Intensive study of the problems of diabetes is also a part of its mission.

There is reason to believe that there are just as many diabetics undetected as there are now under treatment. The aim of Diabetes Detection Week is to supply the necessary stimulus to physician and patient to carry through a urinalysis, and when necessary, other diagnostic procedures.

This enterprise deserves the enthusiastic cooperation of all physicians.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

SECOND SESSION, 85th CONGRESS

The 85th Congress wrote an impressive number of health measures, the more important ones being listed below. It failed to act on some bills, and in all likelihood, these will be introduced anew in the 86th Congress convening next January 7.

SUBJECT	BILL NO.	HOUSE	SENATE
Public Works Loans	S. 3497	Voted Down 8/1	Passed 4/16
Civilian Pay (VA Doctors)	S. 734	Public Law 85-462, June 20	
Military Pay	H. R. 11470	Public Law 85-422, May 20	
Pub. Health School Grants	H. R. 11414	Public Law 85-544, July 22	
HEW Appropriations	H. R. 11645	Public Law 85-580, Aug. 1	
Union Health Plans	S. 2888	Public Law 85-836, Aug. 28	
Social Security	H. R. 13549*	Public Law 85-840, Aug. 28	

SUBJECT	BILL NO.	HOUSE	SENATE
Med. School Aid	H. R. 6874 S. 1917	Hearings Held	
Research Facilities	H. R. 12876	Public Law 85-777, Aug. 27	
Chemical Additives	H. R. 13254	Awaiting Presidential Signature	
Jenkins-Keogh Taxes	H. R. 10 S. 3194	Passed 7/28	
Hill-Burton Extension	H. R. 12628	Public Law 85-664, Aug. 14	
Hill-Burton Loans	H. R. 12694	Public Law 85-589, Aug. 1	
Federal Aviation Agency	S. 3880	Public Law 85-726, Aug. 23	
Civil Defense Aid	H. R. 7576	Public Law 85-606, Aug. 8	
Defense Reorganization	H. R. 12541	Public Law 85-599, Aug. 6	
Medicare Appropriations	H. R. 12738	Public Law 85-724, Aug. 22	
Nursing Home Loans	S. 4035 H. R. 13776	Voted Down 8/18 Pending	Passed 7/11
Presumption of Service Connection	H. R. 413 H. R. 1143	Passed 7/7 Passed 7/21	Postponed
VA Hospitalization	H. R. 10028	Reported 7/30	
Aging Conference	H. R. 9822	Signed Sept 2, Awaiting P. L. No.	

NO ACTION: * Medical Care for Aged (Forand's H. R. 9467); Grants and Scholarships for Nursing (H. R. 306); National Compulsory Health Insurance (H. R. 3764); Health Insurance Pooling (H. R. 6506 and H. R. 6507); Rehabilitation (H. R. 10608 and S. 3551).

Social Security Amendments

As it has done every election year since 1950, Congress again amended the Social Security Act. It increased Old Age, Survivors and Disability Insurance benefits by 7%, in response to demands that benefits keep pace with the cost of living. It provided an additional $197 million for public assistance recipients, and gave states greater flexibility in use of federal funds for financing the medical care of the aged, blind, the disabled and dependent children. To finance the liberalizations, the law increases the taxable base from $4200 to $4800 of gross employment earnings and raises the tax in 1959 from 2¼% to 2½% for the employer and employee, and from 3⅜% to 3¾% for the self-employed. Additional increases are scheduled for 1960, 1963, 1966 and 1969. By 1969, the self-employed will be paying 6¾% of earnings.

Congress left the door ajar for consideration by the next Congress of bills using the social security system to provide hospital and medical care for OASDI beneficiaries. An articulate minority wanted this enacted this year via the proposal of Rep. Aime Forand (D., R. I.), but Congress decided against it. However, the House Ways and Means Committee directed the administration to make a study and report by next February on the various possibilities for financing medical care for the aged, with particular emphasis on the possible practicability of increasing OASDI taxes and using the money to purchase health insurance on retirement. The AMA took a strong stand against using the social security system to provide such care, viewing it as a beginning of national compulsory health insurance.

Medical School Construction Aid

Bills to authorize one-time grants for new and existing medical schools to build classrooms were pending in both House and Senate at adjournment. Extensive hearings were held by the House Interstate health subcommittee. No bill was reported to the floor because of (1) concern over the segregation issue, (2) a question of whether the states have exhausted all resources, and (3) a reluctance of some committee members to spend the money now. The AMA supported one-time grants in its testimony.

Jenkins-Keogh Tax Deferral

The drive to give the self-employed equal treatment with the employed in setting aside tax-deferred sums for retirement plans moved closer than ever to enactment. A bill passed the House late in July with only a smattering of opposition. But it died in the Senate Finance Committee; a major factor was Treasury Department insistence it would result in a large tax revenue loss. AMA, in concert with the American Thrift Assembly, pressed hard for enactment. New efforts to get the measure passed in the 86th Congress are being planned.

Medicare Appropriations

Congress took a long look at the medicare program, now nearing its second anniversary, and decided that the civilian phase of the program had to be curtailed in favor of greater use of military facilities. The House first trimmed $10.2 million from an admittedly slim budget of $70.2 million,

and then wrote into the Defense Department appropriation a section that would have prevented the services from asking for any supplemental appropriation for the entire fiscal year or using other funds. When it reached the Senate, Medicare and Defense officials joined with the American Medical Association and others in a plea for restoration of funds and elimination of the destructive section. This was accomplished through an amendment sponsored by Senator Knowland (R., Calif.). In the ensuing conference, language was written in a report which, while not having the full force of the law, nonetheless directed the military to start cutting back on some aspects of civilian medicare. To this end, the Office for Dependents Medical Care announced new restrictions effective this fall. They aimed at higher military facilities utilization, such as requiring dependents living with sponsors to use military resources unless they are not available.

Veterans Hospitalization

Late in the session as a windup to lengthy hearings on veterans entitlement to VA hospitalization, the House Veterans Affairs Committee reported out an omnibus hospitalization bill. The measure had as its major objective the opening of some 5,000 additional beds which the committee maintains the Budget Bureau is holding back on. It was reported too late for final action. The AMA testified in favor of a clear spelling out by Congress of veterans entitlement to federal care.

White House Conference on Aging

The President is instructed to call a White House Conference on Aging in January, 1961, by a measure passed late in the session. This national meeting will bring together federal, state and local leaders working in the field of aging. Their objective: to arrive at facts and recommendations on the utilization of skills, experiences and energies, and the improvement of the conditions of older people. A final report would be submitted to the President within 90 days after the conference. A series of state-organized meetings would precede the 1961 conference. To help the states finance these meetings, the law provides up to $15,000 a state with a minimum of $5,000. These figures, reduced from the original $50,000 per state, were used with the anticipation that states would also participate substantially in the financing. The AMA gave this legislation its full support; author of the bill was Rep. John Fogarty (D., R. I.).

Doctor Draft Extension

Under this act passed in the first session, selective service has authority until July 1, 1959, to call certain physicians up to age 35 for military service. Only those doctors with obligations under the regular draft and who have been deferred for any reason may be called. Although the military has been getting enough doctors through new graduates and volunteers, it expects to ask for another extension next year.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

CANCER SEMINAR
ACS Alabama Division
January 28-29, 1959

Plans have been worked out by the American Cancer Society, Alabama Division, and the Medical Association of the State of Alabama to hold a cancer seminar in Birmingham, January 28-29, 1959, headquarters at the Dinkler-Tutwiler Hotel. Outstanding speakers have been obtained for this event and are as follows:

Dr. Alan Thal, University of Minnesota School of Medicine

Dr. George C. Andrews, New York City

Dr. Oliver Moore, Memorial Hospital, New York

Dr. Thomas F. Nealon, Jr., Jefferson Medical College

Dr. Louis A. Leone, Medical College of Virginia

Dr. Milton Friedman, New York University School of Medicine

Dr. Herbert C. Schmitz, Loyola Medical School

Dr. Warren Cole, University of Illinois School of Medicine

Dr. William W. Scott, Brady Urological Institute, The Johns Hopkins Hospital

Complete details will be available at a later date from the office of the American Cancer Society, 2029 Warrior Road, Birmingham, Alabama.

GASTROENTEROLOGICAL CONVENTION

The 23rd Annual Convention of the American College of Gastroenterology will be held at the Jung Hotel in New Orleans, La., on October 20, 21, 22, 1958.

In addition to the many individual papers to be presented, there will be panel discussions on Gastric Carcinoma, Steroids in Gastroenterology and Functional Disturbances of the Gastrointestinal Tract. There will again be scientific as well as commercial exhibits and the sessions will be open to all physicians without charge.

On October 23, 24 and 25, immediately following the Convention, Dr. Owen H. Wangensteen of Minneapolis, Minn. and Dr. I. Snapper of Brooklyn, N. Y., will again be the moderators of the Annual Course in Postgraduate Gastroenterology. The sessions will be held at the Jung Hotel and in the Auditorium of the Louisiana State University School of Medicine. Attendance at the Course will be limited to those who have registered in advance.

Silver certificates are to be presented to those who have been affiliated with the organization for twenty-five years.

Honorary Fellowships are to be presented to Major-General James P. Cooney, M.C., Deputy Surgeon-General, Department of the Army, Washington, D. C.; Dr. James D. Rives, New Orleans, La. and Dr. Edgar Hull, New Orleans, La.

As a part of this year's sessions, a one-day regional meeting will be held at the University Hospital in Mexico City on October 27, 1958, and members of the College from that city will present papers.

Copies of the program and further information concerning the Postgraduate Course and Mexico Regional Meeting may be obtained by writing to: American College of Gastroenterology, 33 West 60th St., New York 23, N. Y.

TWELFTH ANNUAL ASSEMBLY LOUISIANA ACADEMY OF GENERAL PRACTICE

The Louisiana Academy of General Practice will hold its Twelfth Annual Assembly on October 21-23, 1958 at the Bentley Hotel in Alexandria, Louisiana. The Congress of Delegates will meet on the morning of October 21, and this meeting will be followed by a scientific assembly which will close on the afternoon of October 23.

Following are the speakers and their topics:

Don W. Chapman, M.D.—**Anxiety Heart Disease** and **Management of Myocardial Infarction**

Seymour Hershman, M.D.—**Hypnosis and Practical Demonstrations in Hypnosis**

Isadore Dyer, M.D.—**Emergencies in the Third Stage of Labor** and **Surgery in Pregnancy**

Ellard Yow, M.D.—**The Use of Steroids in Systemic Diseases** and **Recent Advances in Therapy**

E. Sinks McLarty, M.D.—**Postgraduate Training and the Preceptorship Program**

W. W. Frye, M.D. and M. E. Lapham, M.D.—**Discussion of Dr. McLarty's Paper**

Jose Garcia Oller, M.D.—**Neurological Examination** and **Common Brain Tumors**

F. Michael Smith, Jr., M.D.—**Anemia, Vomiting and Diarrhea in Infants and Intravenous Fluids** and **Pediatrics Potpourri**

State officers for 1958-1959 will be installed on Wednesday evening by Dr. Fount Richardson of Fayetteville, Arkansas, President-elect of the American Academy of General Practice. Dr. Francis M. Brian of Alexandria, Louisiana, is Convention Chairman and Dr. Esmond A. Fatter of New Orleans is Chairman of the Scientific Assembly.

The scientific program has been accepted for fourteen (14) hours Category I credit by the Commission on Education of the American Academy of General Practice.

IMPORTANT NOTICE

The Executive Committee of the East Baton Rouge Parish Medical Society requests that the doctors of the state, their families and friends vote against the amendment providing for a Charity Hospital in Baton Rouge, in the November election, for the following reasons:

1—This is a ¾ mill state property tax.

2—The percapita tax burden in Louisiana already far exceeds that of most other states. We are spending approximately 30 million dollars to support existing charity hospitals which take care of many people, approximately 1/3 of which are not eligible.

3—Indigent emergencies are already adequately taken care of in Baton Rouge Hospitals and there is adequate free state ambulance service daily and free state bus service to New Orleans Charity Hospital for non-emergencies.

4—The practice of medicine on the free enterprise basis is threatened as there are already about 3 free beds to each pay bed in Louisiana.

5—There is difficulty staffing the present hospitals and another one would only lead to greater shortage of nurses and ancillary personnel.

6—Baton Rouge is less than 100 miles from a charity hospital in any direction or about 2 hours by auto or ambulance. These hospitals are Independence, New Orleans, Alexandria, and Lafayette.

BOOK REVIEWS

Magnetic Removal of Foreign Bodies; by Murdock Equen, M. D., Springfield, Ill. Charles C Thomas, 1957, pp 94. Price $4.50.

Dr. Equen stresses an important procedure in bronchoesophagology. Since the days of Chevalier Jackson I have not seen such an extensive list of successful removal of foreign bodies from the esophagus and bronchi.

Dr. Equen is honest enough to admit his mistakes, and to include such adjuncts as biplane fluoroscope, antibiotics and tracheotomy. This method is much easier than the ones used prior to the invention of the Alnico magnet. I have seen Louis H. Clerf struggle with biplane fluoroscope and rigid gastroscope to remove with forceps a metallic foreign body from the stomach. Gabriel Tucker admitted spending $500 in designing a flexible pair of forceps for removing foreign bodies fluoroscopically from the stomach. He acquired a denture and a bobby pin. Credit should be given to Paul Holinger for the use of a magnet in esophagology and to Chevalier L. Jackson for use of a small magnet in the bronchioles.

The chest surgeon has encroached into bronchoesophagology almost transplanting the otolaryngologist. A general surgeon in a large clinic wailed that chest surgeons were trying to take over general surgery. Splenectomies and cholecystectomies were done through the chest wall. When a method for doing appendectomies through the ribs was devised, the general surgeons would be licked.

WILLIAM F. BONNER, M. D.

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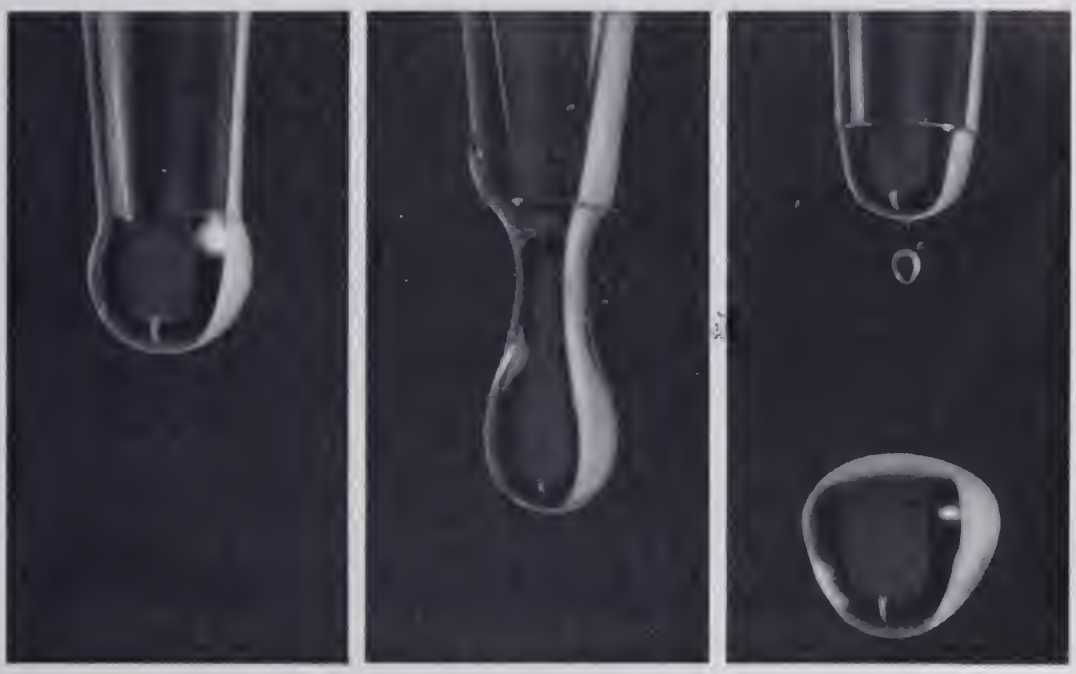
Grune & Stratton, N. Y.: Rehahilitation in Industry, edited by Donald A. Covalt, M.D.

Louisiana State University Press, Baton Rouge: The Rudolph Matas History of Medicine in Louisiana, Volume I, edited by John Duffy.

Office of the Surgeon General, Dept. of the Army, Washington: Cold Injury, Ground Type, by Colonel Tom F. Whayne, MC, USA (Ret.), and Michael E. DeBakey, M.D.

W. B. Saunders Co., Phila.: Emergency Treatment and Management, by Thos. Flint, Jr., M.D. (2nd edit.); Callander's Surgical Anatomy, by Barry J. Anson, Ph.D., and Walter G. Maddock, M.D. (4th edit.).

Williams & Wilkins Co., Balt.: Human Parturition; Normal and Abnormal Labor, by Norman F. Miller, M.D., T. N. Evans, M.D., and R. L. Haas, M.D.



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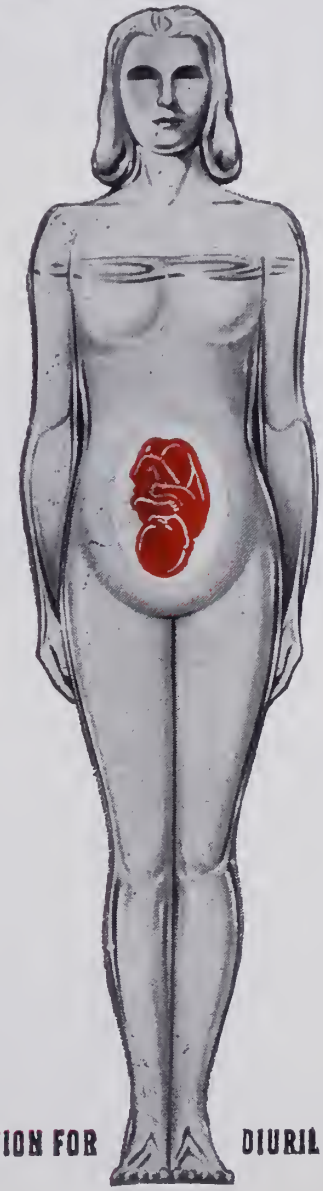
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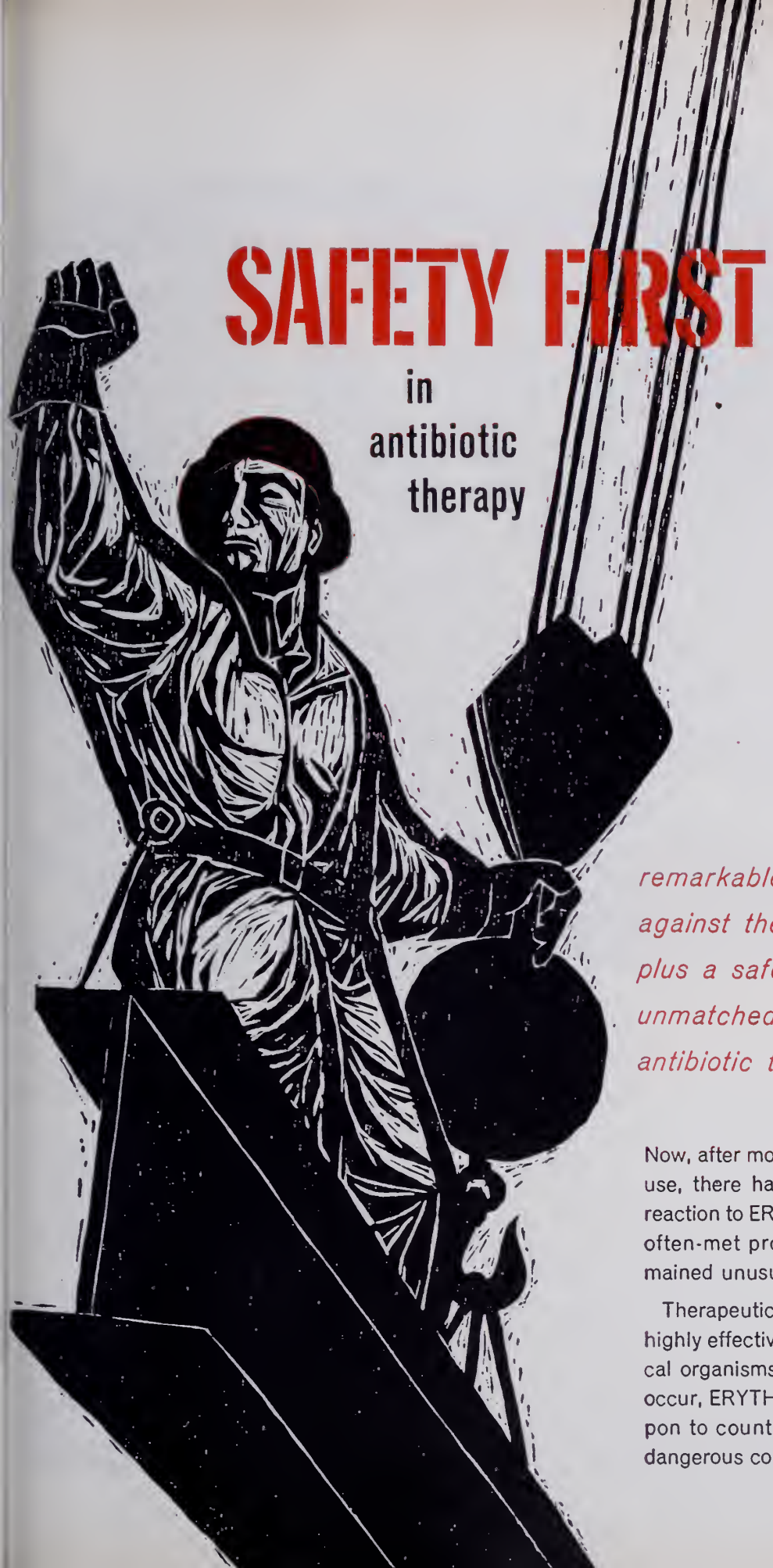
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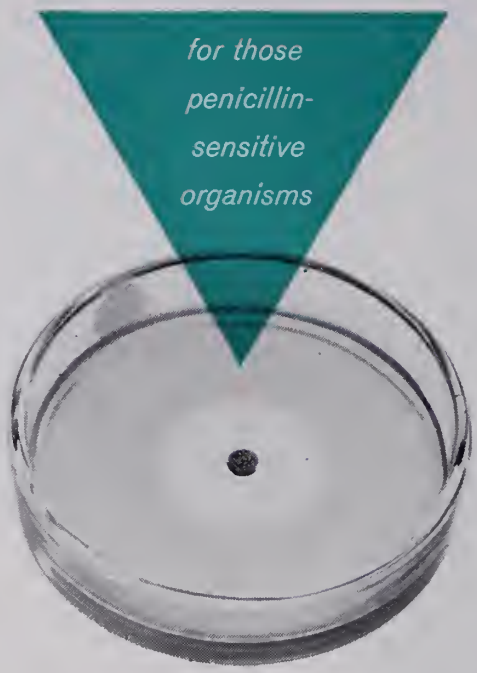
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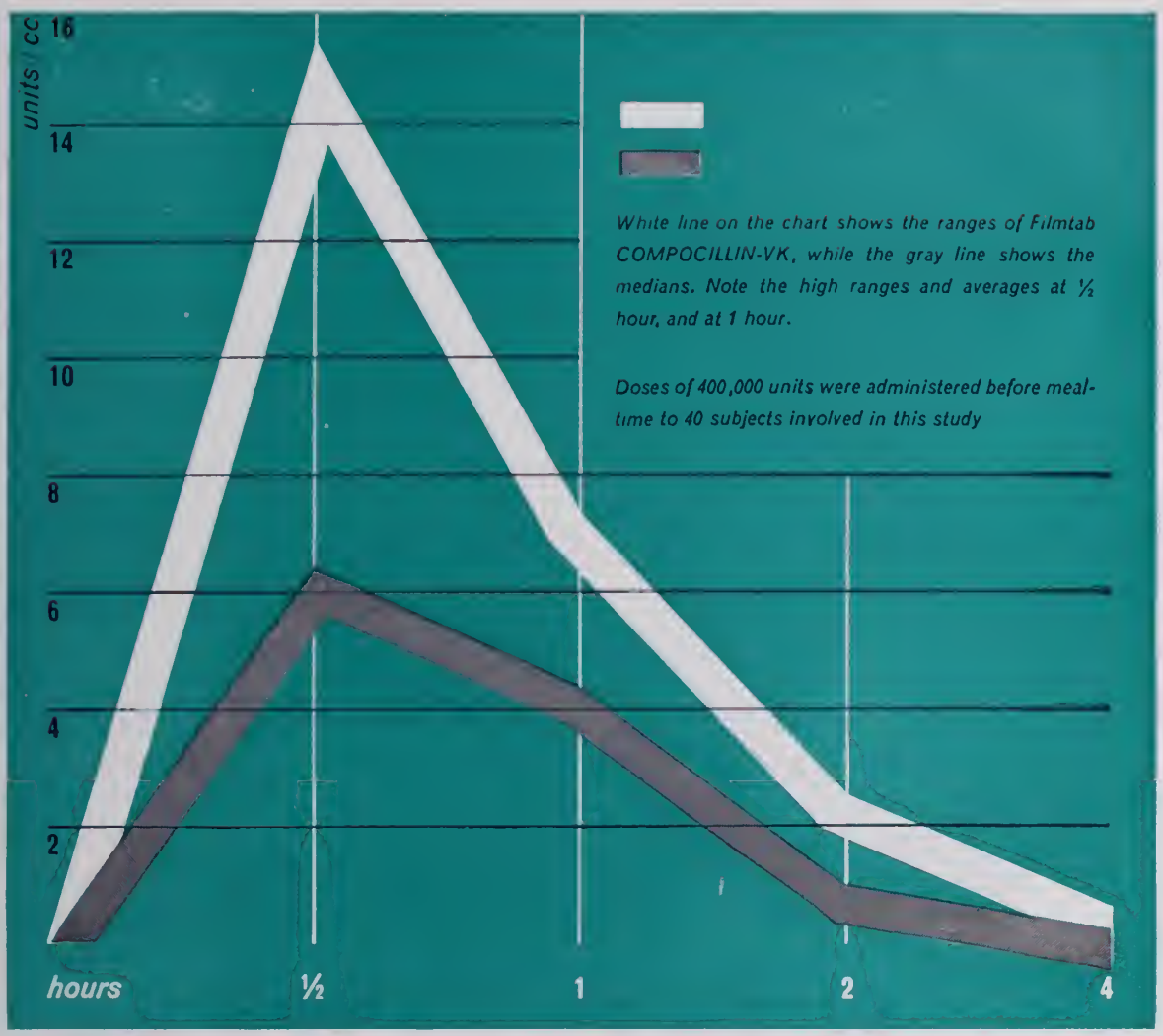
Abbott



COMPOCILLIN-VK®

the higher blood levels of

Potassium
Penicillin V



Now, in both Filmtab and Oral Solution, patients get high penicillin V blood levels with Compocillin-VK. Note the chart. Concentrations are three times higher than an equivalent dose of potassium penicillin G.

Compocillin-VK is indicated whenever you desire oral penicillin therapy. In severe infections, oral penicillin should be supplemented by parenteral therapy to obtain the maximum therapeutic response.

Indications:

Against all organisms sensitive to oral penicillin therapy. For prophylaxis and treatment of complications in viral conditions. And as a prophylaxis in rheumatic fever and rheumatic heart disease.

Dosage:

Depending on the severity of the infection, the usual adult dose is 125 to 250 mg. (200,000 to 400,000 units) every four to six hours. For children, dosage may be reduced in proportion to body weight.

Supplied:

In Filmtabs, representing 125 mg. (200,000 units) of potassium penicillin V, bottles of 50 and 100. In 250 mg. (400,000 units), bottles of 25 and 100.

For Oral Solution, Compocillin-VK comes in dry granules for easy reconstitution with water. Cherry-flavored, the granules come in 40-cc. and 80-cc. bottles. Each 5-cc. teaspoon of solution represents 125 mg. (200,000 units) of potassium penicillin V.

Compocillin-V® Oral Suspension (Ready-Mixed), Hydrabamine Penicillin V, Abbott, comes in 40-cc. and 80-cc. bottles. Each tasty, banana-flavored 5-cc. teaspoonful represents 180 mg. (300,000 units) of penicillin V. At all pharmacies. Abbott



indications:

Against a wide range of staphylococcal, streptococcal, pneumococcal and enterococcal infections. A drug of choice for treating serious infections caused by organisms that resist all other antibiotics.

dosage:

Administered intravenously. In pneumococcal, streptococcal and enterococcal infections, a dosage of 25 mg./Kg. will usually be adequate. Majority of staphylococcal infections will be controlled by 25 to 50 mg./Kg. per day. It is recommended that the daily dosages be divided into two or three equal parts at eight-or 12-hour intervals.

supplied:

In vials containing a sterile, lyophilized powder, representing 500 mg. of ristocetin A activity.

SPONTIN®

(RISTOCETIN, ABBOTT)

809187

provides bactericidal action
against coccal infections

provides successful short-term therapy
against endocarditis[1]

provides clinical effectiveness against
resistant staphylococci and enterococci[2]

Now, after almost a year, SPONTIN has proved to be an exceptionally valuable agent for treating serious coccal infections.

Some of the outstanding clinical responses to SPONTIN therapy involved enterococcal endocarditis, staphylococcal pneumonias and staphylococcal bacteremias. These were patients who were going downhill steadily—in spite of treatment by other antibiotics.

Results, of course, were not always good. Sometimes, the patient was treated with SPONTIN too late. Occasionally, there were side effects and SPONTIN had to be withdrawn. But generally, SPONTIN proved extremely useful and many times—lifesaving. Be sure your hospital has it stocked. Abbott

1. Antibiotics Annual, 1956-'57, p. 706.
2. Antibiotics Annual, 1957-'58, p. 180-7.



an important lifesaving antibiotic





Don't forget, Doctor—
"to take some of your own medicine!"

On vacation — at the beach — on the golf course — or gardening in your own back yard, sunburn, insect bites, cuts and abrasions are all part of the summer picture.

A handy tube of Xylocaine Ointment means prompt relief of pain, itching and burning for your patients. After you've seen to your patients' comfort, remember that tube of Xylocaine Ointment for yourself.

Just write "Xylocaine Ointment" on your Rx blank or letterhead, and we will send a supply for you and your family.

Astra Pharmaceutical Products, Inc., Worcester 6, Mass., U.S.A.

XYLOCAINE® OINTMENT
(brand of lidocaine*)

2.5% & 5%

SURFACE ANESTHETIC

SEE PDR

*U. S. Pat. No. 2,441,498 Made in U. S. A.

When the bronchial tree has too much "bark"

make cough MORE PRODUCTIVE, LESS DESTRUCTIVE

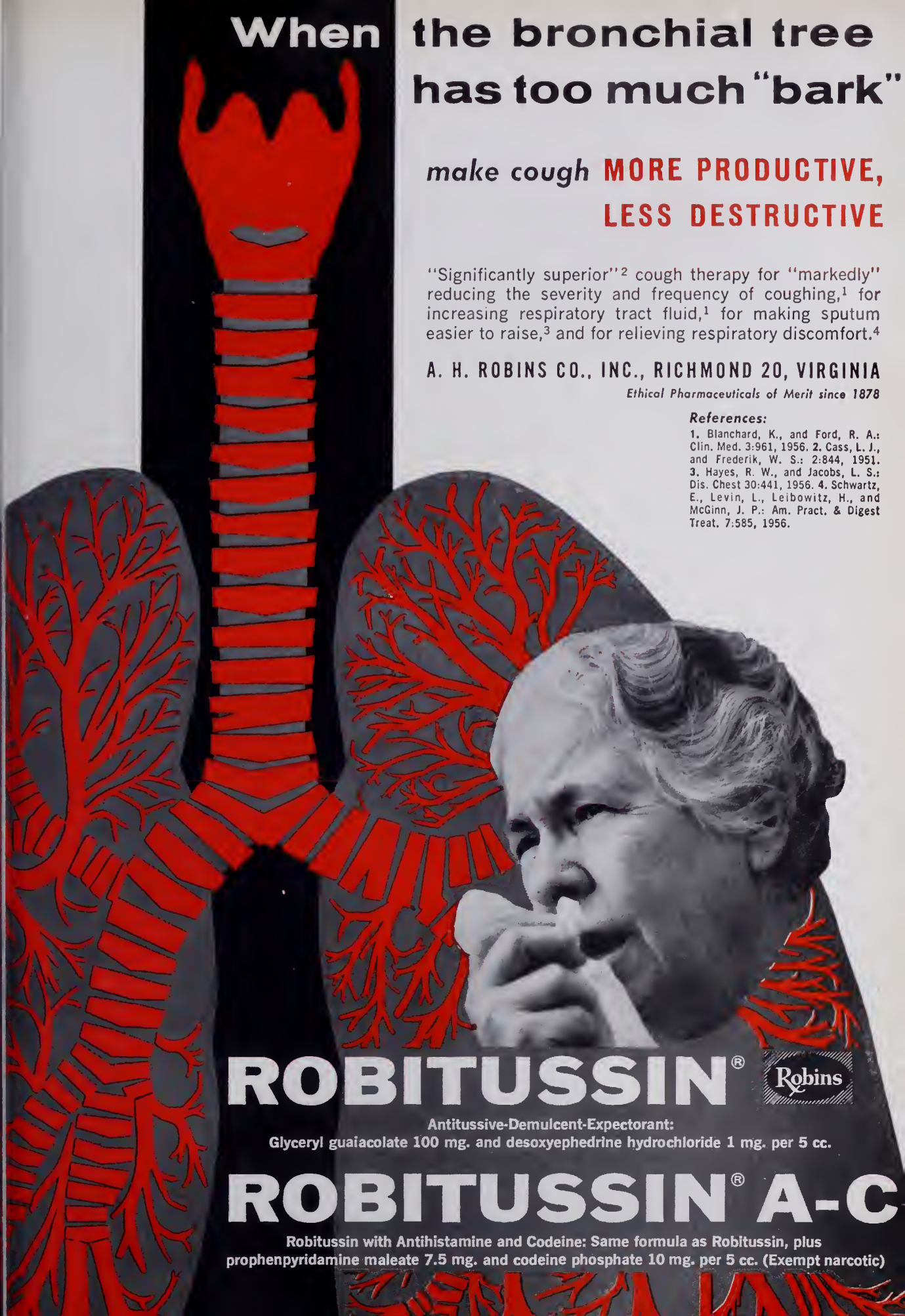
"Significantly superior"[2] cough therapy for "markedly" reducing the severity and frequency of coughing,[1] for increasing respiratory tract fluid,[1] for making sputum easier to raise,[3] and for relieving respiratory discomfort.[4]

A. H. ROBINS CO., INC., RICHMOND 20, VIRGINIA

Ethical Pharmaceuticals of Merit since 1878

References:

1. Blanchard, K., and Ford, R. A.: Clin. Med. 3:961, 1956. 2. Cass, L. J., and Frederik, W. S.: 2:844, 1951. 3. Hayes, R. W., and Jacobs, L. S.: Dis. Chest 30:441, 1956. 4. Schwartz, E., Levin, L., Leibowitz, H., and McGinn, J. P.: Am. Pract. & Digest Treat. 7:585, 1956.



ROBITUSSIN®

Robins

Antitussive-Demulcent-Expectorant:
Glyceryl guaiacolate 100 mg. and desoxyephedrine hydrochloride 1 mg. per 5 cc.

ROBITUSSIN® A-C

Robitussin with Antihistamine and Codeine: Same formula as Robitussin, plus prophenpyridamine maleate 7.5 mg. and codeine phosphate 10 mg. per 5 cc. (Exempt narcotic)

ACHROCIDIN®

TETRACYCLINE-ANTIHISTAMINE-ANALGESIC COMPOUND LEDERLE

A versatile, well-balanced formula for treating common upper respiratory infections, particularly during respiratory epidemics; when bacterial complications are observed or are likely; when patient's history is positive for recurrent otitic, pulmonary, nephritic, or rheumatic involvement.

CHECKS SYMPTOMS: Includes traditional components for rapid relief of the traditional nonspecific nasopharyngitis, symptoms of malaise, chilly sensations, inconstant low-grade fever, headache, muscular pain, pharyngeal and nasal discharge.

Available on prescription only.

Adult dosage for ACHROCIDIN Tablets and new caffeine-free ACHROCIDIN Syrup is two tablets or teaspoonfuls of syrup three or four times daily. Dosage for children according to weight and age.

TABLETS *(sugar coated)*

Each Tablet contains:

ACHROMYCIN® Tetracycline	125 mg.
Phenacetin	120 mg.
Caffeine	30 mg.
Salicylamide	150 mg.
Chlorothen Citrate	25 mg.

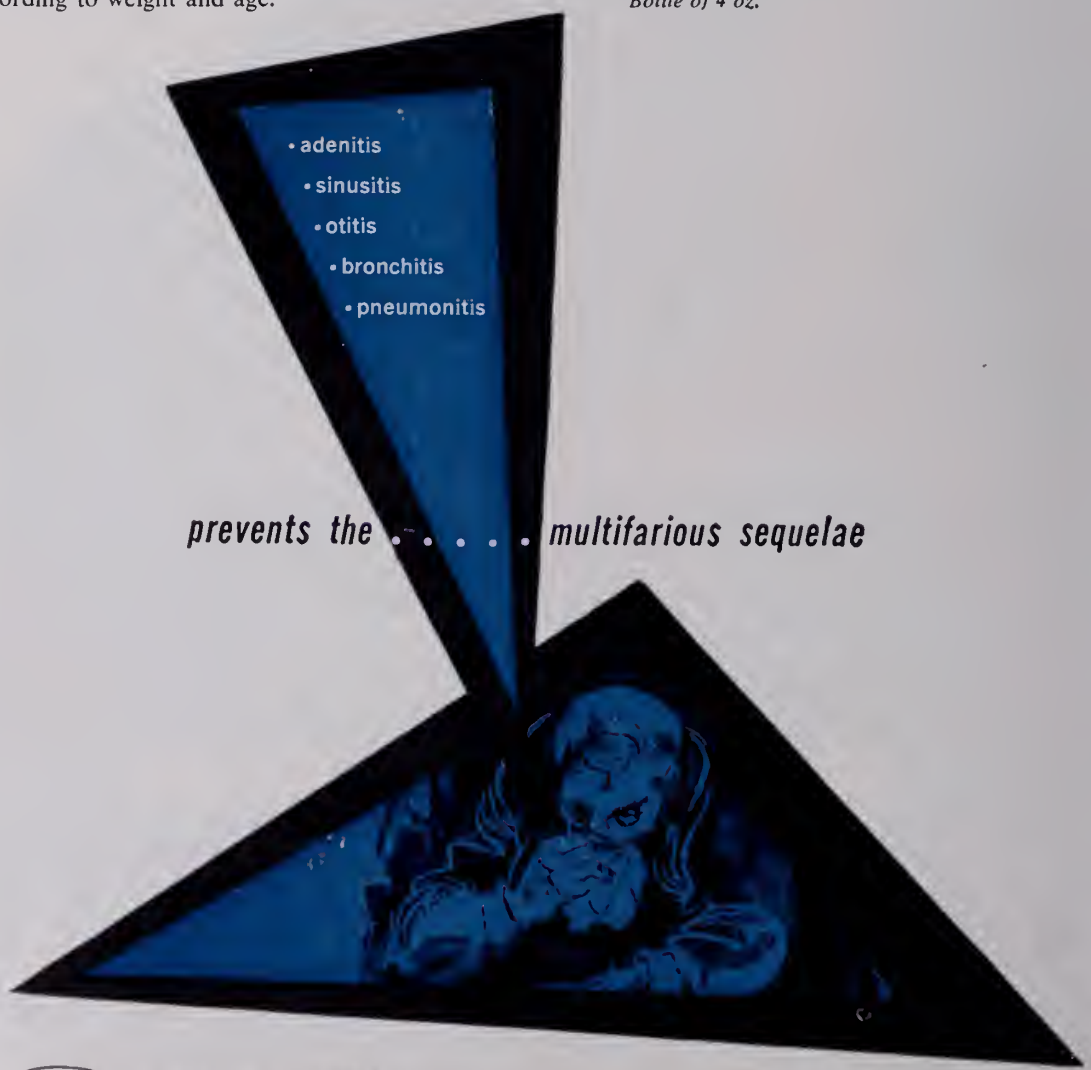
Bottles of 24 and 100.

SYRUP *(lemon-lime flavored)*

Each teaspoonful (5 cc.) contains:

ACHROMYCIN® Tetracycline equivalent to tetracycline HCl	125 mg.
Phenacetin	120 mg.
Salicylamide	150 mg.
Ascorbic Acid (C)	25 mg.
Pyrilamine Maleate	15 mg.
Methylparaben	4 mg.
Propylparaben	1 mg.

Bottle of 4 oz.



Lederle LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

New Milprem®-200

a new potency for greater dosage flexibility in treating the **menopause**



new
Milprem-200
200 mg. MILTOWN®
+
0.4 mg. CONJUGATED
ESTROGENS (EQUINE)

for prompt relief from emotional and somatic disturbances of ovarian decline

SUPPLIED: Bottles of 60 tablets.

DOSAGE: One tablet t.i.d. in 21-day courses with one week rest periods.
Should be adjusted to individual requirements.

ALSO AVAILABLE: Milprem-400 (400 mg. Miltown + 0.4 mg. Conjugated Estrogens, equine) in bottles of 60 tablets.

Literature and samples on request

WALLACE LABORATORIES, *New Brunswick, N. J.*

BONADOXIN®

STOPS MORNING SICKNESS, BUT..

Highest percentage of relief: In *Drugs of Choice*[1], clinical data on several therapies for nausea and vomiting of pregnancy is summarized. BONADOXIN afforded the highest percentage of relief in the "excellent" (79%) and "good" (16%) combined categories. The majority of cases were completely controlled in the first week of treatment, almost all on one tablet nightly.





Safe, too:
BONADOXIN doesn't "stop" the patient. It is free of side effects commonly associated with overpotent antinauseants. Goldsmith, reporting on 620 controlled cases, states that "toxicity and intolerance [are] zero."[2]

BONADOXIN DOESN'T STOP THE PATIENT!

Now available in tablet or drop form.

Dosage: usually one tablet or one tsp. (5 cc.) at bedtime. Severe cases may require another dose on arising.

Supplied: tiny pink-and-blue tablets, bottles of 25 and 100. Bonadoxin Drops in 30 cc. dropper bottles.

Each tiny pink-and-blue Bonadoxin tablet contains:
Meclizine HCl (25 mg.)
...for symptomatic relief
Pyridoxine HCl (50 mg.)
...for metabolic action and prompt antinauseant effect.

Infant colic?
Non-narcotic Bonadoxin Drops stop colic in about 85% of cases.
Each cc. contains:
Meclizine Dihydrochloride...8.33 mg.
Pyridoxine Hydrochloride...16.67 mg.

Dosage:

under 6 months	0.5 cc.	2 or 3 times daily, on the tongue, in fruit juice or water
6 months to 2 years	1.5 to 2 cc.	
2 to 6 years	3 cc.	
adults and children over 6 years	1 teaspoon (5 cc.)	

Supplied:
fruit-flavored, clear green syrup in 30 cc. dropper bottles.

References: 1. Drugs of Choice 1958-1959, St. Louis, C. V. Mosby Company, 1958, p. 347.
2. Goldsmith, J. W.: Minnesota Med. *40*:99 (Feb.) 1957.

Roerig NEW YORK 17, N. Y. DIVISION, CHAS. PFIZER & CO., INC. SCIENCE FOR THE WORLD'S WELL-BEING

Faster rehabilitation in a

Joint inflammation and muscle spasm are the two elements most responsible for disability in rheumatic-arthritic disorders—and MEPROLONE is the one agent that treats both.

MEPROLONE suppresses the inflammatory process and simultaneously relieves aching and stiffness caused by muscle spasm, to provide greater therapeutic benefits and a shorter rehabilitation period than any single antirheumatic-antiarthritic agent.

MEPROLONE-2 is indicated in cases of severe involvement, yet often leads to a reduction of steroid dosage because of its muscle-relaxant action. When involvement is only moderately severe or mild, MEPROLONE-1 may be indicated.

SUPPLIED: Multiple Compressed Tablets in three formulas: MEPROLONE-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 100). MEPROLONE-1 supplies 1.0 mg. prednisolone in the same formula as MEPROLONE-2 (bottles of 100). MEPROLONE-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 30).

Because muscles move joints, both muscle spasm and joint inflammation must be considered in treating the rheumatic-arthritic patient . . .



MERCK SHARP & DOHME Division of MERCK & CO., INC., Philadelphia 1, Pa. MSD

Rheumatoid Arthritis

multiple compressed tablets

MEPROLONE®

THE FIRST MEPROBAMATE-PREDNISOLONE THERAPY



b

MEPROLONE is the one antirheumatic-antiarthritic that exerts a simultaneous action to relax muscles in spasm and to suppress joint inflammation...

c

Therefore, MEPROLONE does more than any single agent to help the physician shorten the time between disability and employability.



MEPROLONE is a trade-mark of Merck & Co., Inc.



LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

LOUISIANA STATE UNIVERSITY
SCHOOL OF MEDICINE

Department of Postgraduate Medicine
New Orleans, Louisiana

Presents

PEPTIC ULCER SYMPOSIUM

November 1, 1958

School of Medicine Auditorium
1542 Tulane Avenue

Registration: 8:00 A.M. Fee: $10:00

Annual Clinical Conference

CHICAGO MEDICAL SOCIETY

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Lectures
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The CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE should be a MUST on the calendar of every physician. Plan now to attend and make your reservation at the Palmer House.

HE NEEDN'T BE HIGH-STRUNG

WEIGHT REDUCTION: Obese patients may resist dieting because they fear losing the emotional security often involved in overeating. **AMBAR** helps them hold the diet line by giving them a more alert, brighter outlook. **WITHOUT JITTERS:** Methamphetamine, a potent CNS augmenter, produces less cardiovascular effect than amphetamine. In **AMBAR** it is combined with just enough phenobarbital to prevent overstimulation. **AMBAR EXTENTABS** provide 10-12 hours of appetite suppression in one controlled-release, extended-action tablet: methamphetamine hydrochloride 10.0 mg.; phenobarbital (1 gr.) 64.8 mg. **AMBAR TABLETS** for conventional dosage or intermittent therapy contain methamphetamine hydrochloride, 3.33 mg.; phenobarbital (⅓ gr.) 21.6 mg. A. H. ROBINS COMPANY, INC., Richmond, Virginia, Ethical Pharmaceuticals of Merit Since 1878

WEIGHT REDUCTION WITHOUT JITTERS

AMBAR™ Robins

methamphetamine and phenobarbital
TABLETS AND EXTENTABS®

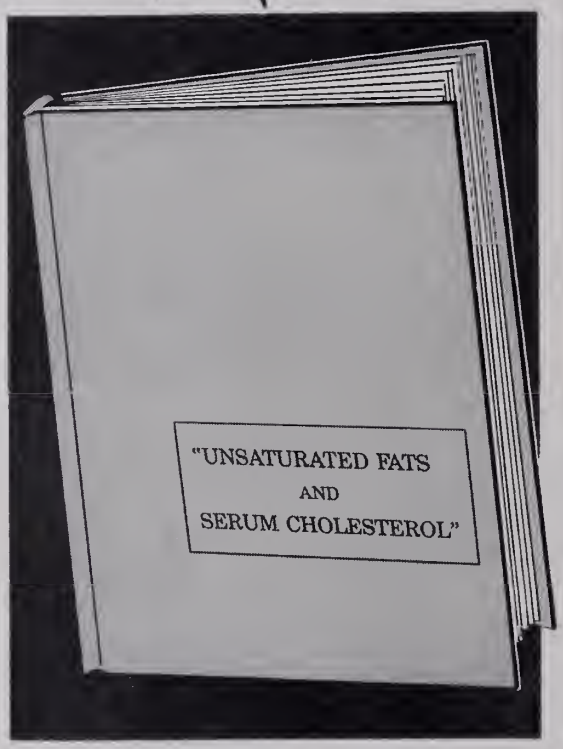
Now available
NEW AMBAR #2
EXTENTABS
(METHAMPHETAMINE 15 mg., PHENOBARBITAL 1gr
for patients who
require higher
methamphetamine
dosage



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This new book contains the most up-to-date bibliography of current research on: 1. The origin and behavior of cholesterol in the human body; 2. The effect of different dietary fats on serum cholesterol levels; 3. The nature of the active components in vegetable oils; and 4. Suggestions for practical diets.

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MAZOLA CORN OIL... the only leading oil made from golden corn, is rich in the important unsaturated fatty acids—When an adequate amount of Mazola is part of the daily meals, elevated serum cholesterol levels tend to be lowered... normal levels tend to stay level...

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CORN PRODUCTS REFINING COMPANY





Each **TABLESPOONFUL** *of* **MAZOLA**

Provides approximately:

LINOLEIC ACID	**7.4 Gm.**
Sitosterols	130.0 mg.
Natural tocopherols	15.0 mg.
Cholesterol	0
Weight 14 Gm.	Calories 126

Total unsaturated Fatty Acids—65%

TYPICAL AMOUNTS PER DIET

For a 3600 calorie diet	3 Tbsp.
For a 3000 calorie diet	2.5 Tbsp.
For a 2000 calorie diet	1.5 Tbsp.

Now—the most widely prescribed tranquilizer[1] in sustained release capsules

Meprospan*

meprobamate (Miltown®) capsules

q. 12 h.



Two capsules on arising **last all day**
Two capsules at bedtime **last all night**
relieve nervous tension on a *sustained* basis, without between-dose interruption

"The administration of meprobamate in sustained action form [Meprospan] produced a more uniform and sustained action . . . these capsules offer effectiveness at reduced dosage."[2]

Dosage: 2 Meprospan capsules q. 12 h.
Supplied: 200 mg. capsules, bottles of 30.

1. Meprobamate is more widely prescribed than any other tranquilizer. Source: Independent research organization; name on request.
2. Baird, H. W., III: A comparison of Meprospan (sustained action meprobamate capsule) with other tranquilizing and relaxing agents in children. Submitted for publication, 1958.

Literature and samples on request

WALLACE LABORATORIES, *New Brunswick, N. J.*
who discovered and introduced Miltown®

*TRADE-MARK

In potentially-serious infections...

The Upjohn Company, Kalamazoo, Michigan

Make new

Panalba*

(Panmycin Phosphate plus Albamycin**)

your broad-spectrum antibiotic of first resort

effective against more than 30 common pathogens, even including resistant staphylococci.

Available forms:

1. Panalba Capsules, bottles of 16 and 100 capsules. Each capsule contains:

Panmycin phosphate (tetracycline phosphate complex) equivalent to tetracycline hydrochloride 250 mg
Albamycin (as novobiocin sodium) 125 mg

2. Panalba KM [ ] Flavored Granules. When sufficient water is added to fill the bottle each teaspoonful (5 cc.) contains:

Panmycin (tetracyclines equivalent to tetracycline hydrochloride 125 mg
Albamycin (as novobiocin calcium) 62.5 mg
Potassium metaphosphate 100 mg.

Dosage:

Panalba Capsules
Usual adult dosage is 2 capsules q.i.d.

Panalba KM Granules
For the treatment of [illegible] acute infections in infants and children the recommended dosage is 1 teaspoonful per 10 to 20 lbs. of body weight per day, administered in 2 to 4 equal doses. Severe or prolonged infections require higher dosage. Dosage per [illegible] is 2 to 4 teaspoonfuls 3 or 4 times daily, depending on the type and severity of the infection.



Of special significance to the physician is the symbol

When he sees it engraved on a Tablet of Quinidine Sulfate he has the assurance that the Quinidine Sulfate is produced from Cinchona Bark, is alkaloidally standardized, and therefore of unvarying activity and quality.

When the physician writes "DR" (Davies, Rose) on his prescriptions for Tablets Quinidine Sulfate, he is assured that this "quality" tablet is dispensed to his patient.

Rx Tablets Quinidine Sulfate Natural
0.2 Gram (or 3 grains)
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Clinical samples sent to physicians on request

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9-7

CHRONIC BRONCHITIS or INFECTIOUS DERMATITIS?

ACCELERATE THE RECOVERY PROCESS WITH

VARIDASE BUCCAL TABLETS

STREPTOKINASE-STREPTODORNASE LEDERLE

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LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

in all diarrheas

CREMOMYCIN®

SUCCINYLSULFATHIAZOLE—NEOMYCIN SUSPENSION WITH PECTIN & KAOLIN

EXPERIENCE

MORE THAN 16 MILLION DOSES ADMINISTERED WITH SAFETY AND EFFICACY.

regardless of etiology

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NEW styling for known standard

To diabetics and their physicians, CLINITEST means rapid *and* reliable urine-sugar testing—standardized for accurate results every time. And now, the new streamlined model (No. 2105) gives your diabetics this standard test in the best looking, most efficient form.

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- **functional:** full-view test tube always in place
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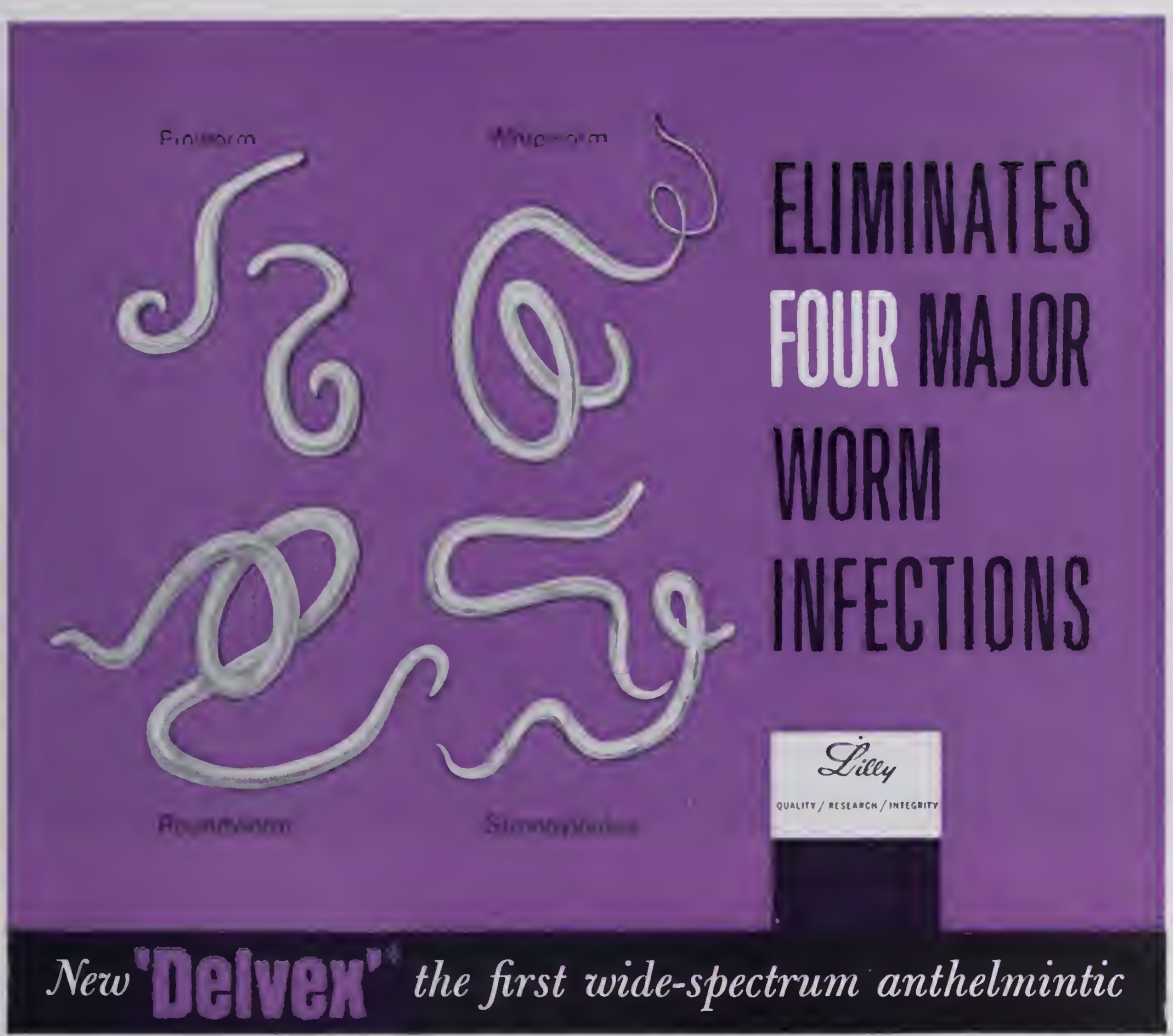
Model No. 2105 CLINITEST Urine-Sugar Analysis Set contains everything needed for accurate standardized testing: bottle of 36 CLINITEST Reagent Tablets, test tube, unbreakable dropper. color scale—instruction sheet, analysis record, diabetic's identification card



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Clinical studies[1] *show:*

- 'Delvex' is effective orally, usually within five days, against four of the five most common worm infections:

Pinworm	Whipworm
Roundworm	Strongyloidiasis

- It also inhibits, and sometimes eliminates, hookworm infection.
- It is fully effective in both single and multiple infections and in both heavy and light infections.
- It eliminates pinworm infection in 100 percent of patients.
- It is the first effective and practicable agent for the oral treatment of strongyloidiasis and whipworm infection.
- No adjunctive measures are needed with 'Delvex' therapy.

Further information and clinical reports may be obtained from your Lilly representative or by writing to our Medical Department.

*'Delvex' (Dithiazanine Iodide, Lilly)
1. Swartzwelder, J. C., et al.: J. A. M. A., 165:2063, 1957.

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"Much better



COSA-TETRACYN*

GLUCOSAMINE POTENTIATED TETRACYCLINE

CAPSULES
(black and white)
250 mg., 125 mg.

ORAL SUSPENSION
(orange-flavored)
125 mg. per tsp. (5 cc.), 2 oz. bottle

NEW! PEDIATRIC DROPS
(orange-flavored) 5 mg. per drop
calibrated dropper, 10 cc. bottle

COSA-TETRASTATIN*

glucosamine potentiated tetracycline with nystatin

antibacterial plus added protection against monilial superinfection

CAPSULES (black and pink) 250 mg. Cosa-Tetracyn, (with 250,000 u. nystatin)

ORAL SUSPENSION 125 mg. per tsp. (5 cc.) Cosa-Tetracyn, (with 125,000 u. nystatin), 2 oz. bottle

COSA-TETRACYDIN*

glucosamine potentiated tetracycline-analgesic-antihistamine compound

For relief of symptoms and malaise of the common cold and prevention of secondary complications

CAPSULES (black and orange) Ea. capsule contains: Cosa-Tetracyn 125 mg. • phenacetin 120 mg. • caffeine 30 mg. • salicylamide 150 mg. • buclizine HCl 15 mg.

REFERENCES: 1. Carlozzi, M.: Ant. Med. & Clin. Therapy 5:146 (Feb.) 1958. 2. Welch, H.; Wright, W. W., and Staffa, A. W.: Ant. Med. & Clin. Therapy 5:52 (Jan.) 1958. 3. Marlow, A. A., and Bartlett, G. R.: Glucosamine and Leukemia. Proc. Soc. Exp. Biol. & Med. 84:41, 1953. 4. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 5. Nathan, L. A.: Arch. Pediat. 75:251 (June) 1958. 6. Cornbleet, T.; Chesrow, E., and Barsky, S.: Ant. Med. & Clin. Therapy 5:328 (May) 1958. 7. Stone, M. L.; Sedlis, A., Bamford, J., and Bradley, W.: Ant. Med. & Clin. Therapy 5:322 (May) 1958. 8. Harris, H.: Clin. Rev. 1:15 (July) 1958.

thank you, doctor"



Proven in research

1. Highest tetracycline serum levels
2. Most consistently elevated serum levels
3. Safe, physiologic potentiation (with a natural human metabolite)

And now in practice

4. More rapid clinical response
5. Unexcelled toleration

Pfizer *Science for the world's well-being*
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Many such hypertensives have been on **Rauwiloid** *for three years and more*

for Rauwiloid IS better tolerated... "alseroxylon [Rauwiloid] is an antihypertensive agent of equal therapeutic efficacy to reserpine in the treatment of hypertension, but with significantly less toxicity."

Ford, R. V., and Moyer, J. H.: Rauwolfia Toxicity in the Treatment of Hypertension, Postgrad. Med. 23:41 (Jan.) 1958.

No Tolerance Development
Lower Incidence of Depression

Rauwiloid®

ALSEROXYLON, 2 MG.



just two tablets at bedtime

After full effect one tablet suffices

For gratifying Rauwolfia response virtually free from side actions

Riker
NORTHRIDGE, CALIFORNIA

When more potent drugs are needed, prescribe

Rauwiloid® + Veriloid®
alseroxylon 1 mg. and alkavervir 3 mg.
for moderate to severe hypertension.
Initial dose 1 tablet t.i.d., p.c.

Rauwiloid® + Hexamethonium
alseroxylon 1 mg. and hexamethonium chloride dihydrate 250 mg.
in severe, otherwise intractable hypertension.
Initial dose ½ tablet q.i.d.

Both combinations in convenient single-tablet form.

Low Dosage KYNEX* for G.U. Infections

Sulfamethoxypyridazine Lederle



Unusual Antibacterial and Anti-infective Properties—More soluble in acid urine[1] . . . higher and better sustained plasma levels than any other known and useful antibacterial sulfonamide.[2]

Unprecedented Low Dosage—Less sulfa for the kidney to cope with . . . yet fully effective. A single daily dose of 0.5 to 1.0 Gm. maintains higher plasma levels than 4 to 6 Gm. daily of other sulfonamides—a notable asset in prolonged therapy.[2]

Dosage: The recommended adult dose is 1 Gm. (2 tablets) the first day, followed by 0.5 Gm. (1 tablet) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours.

KYNEX—WHEREVER SULFA THERAPY IS INDICATED

Tablets: Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

Syrup: Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

references:
1 Grieble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958
2. Editorial: *New England J. Med.* 258:48-49, 1958.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

*Reg. U. S. Pat. Off.

WHEN YOU TREAT INFECTIONS IN PATIENTS SUCH AS THESE

- debilitated
- elderly
- diabetics
- infants, especially prematures
- those on corticoids
- those who developed moniliasis on previous broad-spectrum therapy
- those on prolonged and/or high antibiotic dosage
- women—especially if pregnant or diabetic

the best broad-spectrum antibiotic to use is

MYSTECLIN-V

Squibb Tetracycline Phosphate Complex (Sumycin) and Nystatin (Mycostatin) — Sumycin plus Mycostatin

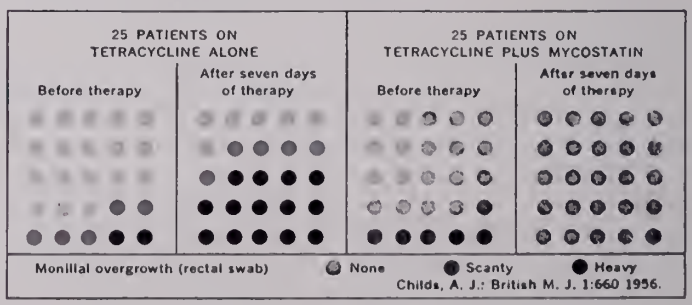
for practical purposes, Mysteclin-V is sodium-free

for "built-in" safety, Mysteclin-V combines:

1. Tetracycline phosphate complex (Sumycin) for superior initial tetracycline blood levels, assuring fast transport of adequate tetracycline to the infection site.

2. Mycostatin—the first safe antifungal antibiotic—for its specific antimonilial activity. Mycostatin protects many patients (see above) who are particularly prone to monilial complications when on broad-spectrum therapy.

MYSTECLIN-V PREVENTS MONILIAL OVERGROWTH



Childs, A. J.: British M. J. 1:660 1956.

Capsules (250 mg./250,000 u.), bottles of 16 and 100. *Half-Strength Capsules* (125 mg./125,000 u.), bottles of 16 and 100. *Suspension* (125 mg./125,000 u.), 2 oz. bottles. *Pediatric Drops* (100 mg./100,000 u.), 10 cc. dropper bottles.

SQUIBB

Squibb Quality—the Priceless Ingredient

"MYSTECLIN," "MYCOSTATIN," AND "SUMYCIN" ARE SQUIBB TRADEMARKS



all cold symptoms

New timed-release tablet provides:

...the superior decongestant and antihistaminic action of Triaminic

...non-narcotic cough control as effective as with codeine, but without codeine's drawbacks

...an expectorant to augment demulcent fluids

...the specific antipyretic and analgesic effect of well-tolerated APAP

...the prompt and prolonged activity of timed-release medication

Each* TUSSAGESIC *Tablet contains:

TRIAMINIC®	50 mg.
(phenylpropanolamine HCl	25 mg.;
pheniramine maleate	12.5 mg.;
pyrilamine maleate	12.5 mg.)
Dormethan (brand of dextromethorphan HBr)	30 mg.
Terpin hydrate	180 mg.
APAP (N-acetyl-para-aminophenol)	325 mg.

Tussagesic Tablets provide relief from *all* cold symptoms in minutes, lasting for hours.

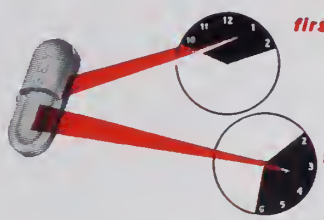
Dosage: One tablet in the morning, mid-afternoon, and in the evening, if needed. The tablet should be swallowed whole to preserve the timed-release action.

To reduce upper respiratory congestion and irritating secretions.

For non-narcotic control of the cough reflex.

To augment demulcent respiratory secretions.

For specific, highly effective antipyresis and analgesia.



Also available—for those who prefer palatable liquid medication—

Tussagesic suspension

NEW

Tussagesic

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

now—an antibiotic troche that

STOPS COUGH TOO





The *cough control* provided by homarylamine (a non-narcotic antitussive) approximates that of codeine.

Three antibiotics (bacitracin, tyrothricin, neomycin) act in combination against a wide variety of pathogens—with little danger of side reactions.

The anesthetic-analgesic effect of benzocaine brings *soothing relief* to inflamed tissues of mouth and throat.

PENTAZETS now extend the therapeutic usefulness of convenient troche medication. Each pleasant-tasting PENTAZETS troche acts promptly against the most bothersome aspects of mouth and throat irritations.

PRESCRIBE

Pentazets®

antitussive—antibiotic-anesthetic—analgesic troches

MSD MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

Dosage: Three to 5 troches daily for 3 to 5 days.
Supplied: In vials of 12.
PENTAZETS is a trademark of Merck & Co., Inc.

new

Tao*

PRONOUNCED TAY-O

Capsules / Oral Suspension

designed for effective control of common gram-positive infections

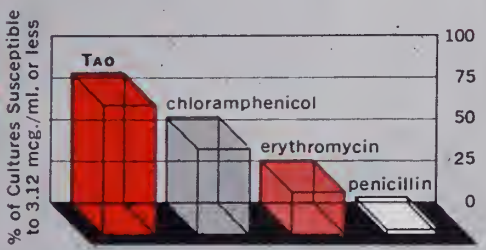
effective . . .

CLINICAL RESULTS	adults	children	all Staph infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were Staph. aureus and Staph. albus. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, Hemophilus influenzae.

even against resistant staph[1,2] . . .

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.[1]



well tolerated . . .

REACTIONS:

(a) adults	(b) children
Total—9.2% (20 out of 217)	Total—0.6% (1 out of 167)
Skin rash—1.4% (3 out of 217)	Skin rash—none
Gastrointestinal—7.8% (17 out of 217)	Gastrointestinal—0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus . . . stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since Tao is therapeutically stable in gastric acid, it may be administered at any time, without regard to meals.

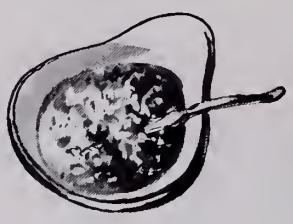
Supplied: Tao Capsules—250 mg. and 125 mg.; bottles of 60. Tao for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 476.

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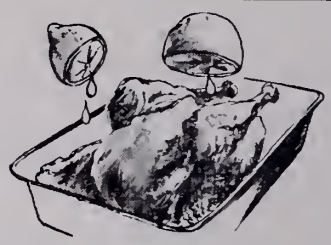
*TRADEMARK



Tomato Sauce



Herbs and Spices



Chicken



Meat Loaf



Hamburgers



Kabobs



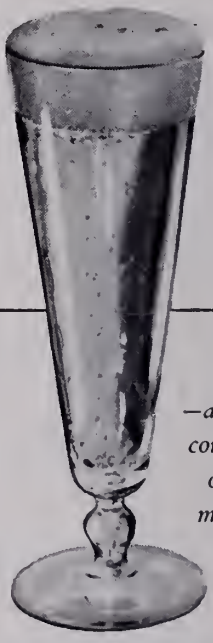
Green Salads



Angel Cake

These flavor tips keep the taste in when you take the fat out of your patient's diet

The Low-Fat Low-Cholesterol Diet



—and with your consent, a glass of beer for a morale-booster

• Cranberry and tomato sauce pinch-hit for gravy. Herbs and spices lend a fine aroma to meats and vegetables. Chicken can be basted with lemon or orange juice. Meat loaf may sport a gay cap of whole-cranberry sauce while "surprise" hamburgers can hide a slice of pickle or onion sealed between two thin patties. And kabobs can add something different.

On green salads, cottage cheese thinned with lemon juice makes the dressing. For dessert, angel cake goes nicely under fruits—skim milk powder makes the "whipped cream."

And with a glass of beer*—at your discretion—your patient will find his diet interesting and ample without straying from your instructions.

*Fat—0; Calories 104/8 oz. glass (Average of American Beers)

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Beer—America's Beverage of Moderation

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to

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tops with adults, too.

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Vitamin A	5,000 Units*
Vitamin D	1,000 Units*
Vitamin C	75 mg.
Vitamin E	2 Units†
Vitamin B-1	2.5 mg.
Vitamin B-2	2.5 mg.
Vitamin B-6	1 mg.
Vitamin B-12 Activity	3 mcg.
Panthenol	5 mg.
Nicotinamide	20 mg.
Folic Acid	0.1 mg.
Biotin	30 mcg.
Rutin	12 mg.
Calcium Carbonate	125 mg.
Boron	0.1 mg.
Cobalt	0.1 mg.
Fluorine	0.1 mg.
Iodine	0.2 mg.
Magnesium	3.0 mg.
Manganese	1.0 mg.
Molybdenum	1.0 mg.
Potassium	2.5 mg.

*U.S.P. UNITS †INT. UNITS

Dose: One Nugget per day
Supplied: Boxes of 30–one month's supply
Boxes of 90–three months' supply or family package.

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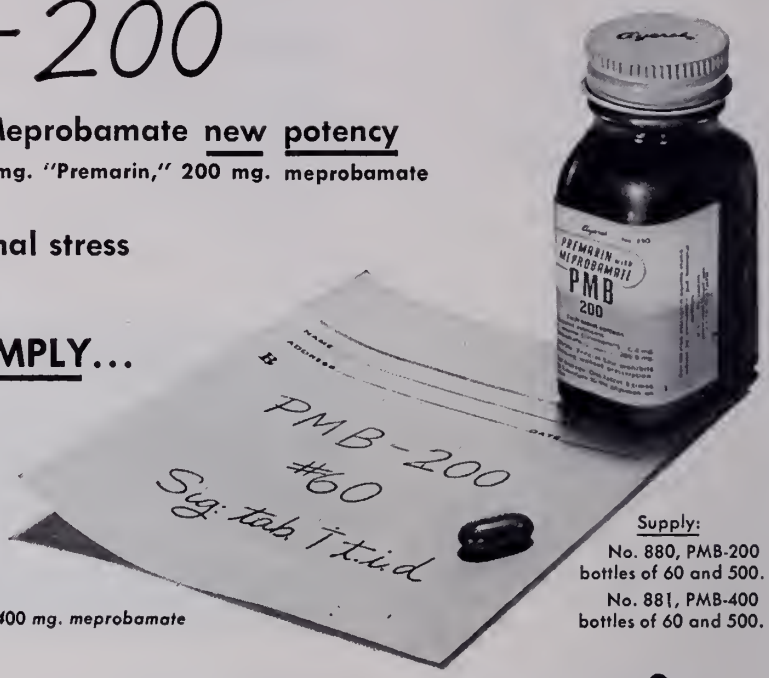
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excellent for lesions of head and hands
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1. Welsh, A. L., and Ede, M.: J.A.M.A. *166*:158, 1958.
2. Bleiberg, J.: J.M. Soc. New Jersey *53*:37, 1956.
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5. Clyman, S. G.: Postgrad. Med. *21*:309, 1957.

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why all the fuss over potassium?



Many physicians will recall when safe but potent organomercurials were first introduced. At the time there was considerable worry about possible potassium loss. Patients were instructed to take foods rich in this mineral, and not infrequently potassium supplements also were advised. After enough experience was gained, it became evident that only the exceptional case could lose enough potassium to be concerned about. And with oral organomercurial diuretics this was practically never a problem.

Why revive the subject now? Because clinical experience with nonmercurial diuretics indicates most of them have such a specific effect on potassium that with their use very real problems must be faced. Enough potassium loss can lead to digitalis toxicity or to a classical overt hypopotassemia. Since a fair percentage of cardiacs who receive diuretics are also digitalized, this excess potassium excretion is clinically serious. Clinical experience is still too limited with some nonmercurial diuretics to say just how often such loss will occur—but warnings already have been sounded by some clinical investigators as to the need for potassium supplementation.

Experience in many patients, for many years, demonstrates that potassium loss is never a problem when NEOHYDRIN® is the oral diuretic. And there is no refractoriness to this effective oral organomercurial.

LAKESIDE

general use...
in general practice

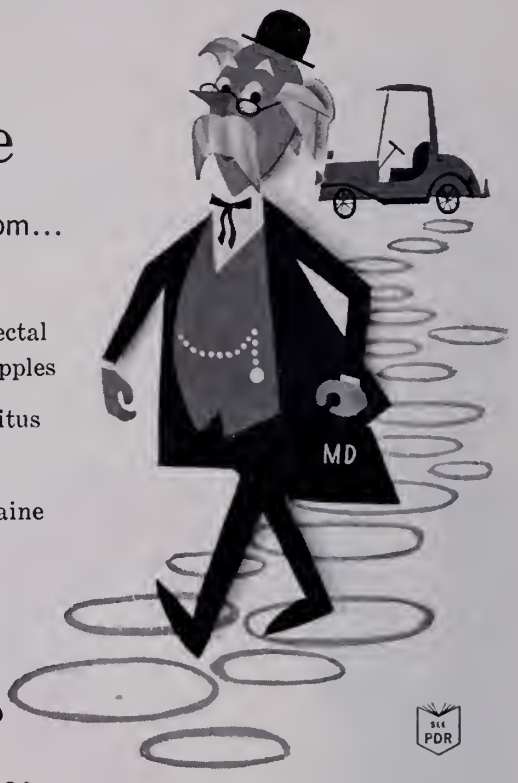
fast, effective and long-lasting relief from...

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The water-soluble, nonstaining base melts on contact with the tissue, releasing the Xylocaine for immediate anesthetic action. It does not interfere with the healing processes.



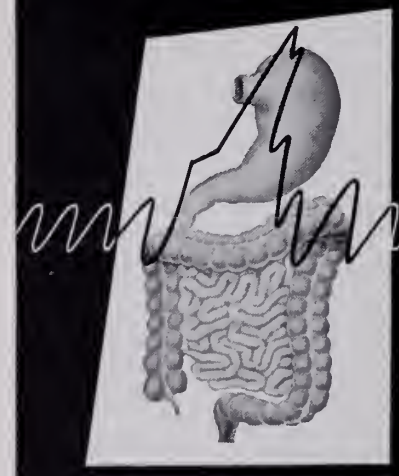
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15 mg.

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- *combining musculotropic and neurotropic action plus mild central nervous system sedation for "the butterfly stomach."*

dosage: one tablet before each meal and at bedtime.

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Improve appetite and energy
with ample amounts of vitamins—B_1, B_6, B_{12}.

strengthen bodies with needed protein
Through the action of l-Lysine, cereal and other low-grade protein foods are up-graded to maximum growth potential.

discourage nutritional anemia
with iron in the well-tolerated form of ferric pyrophosphate...plus sorbitol for enhanced absorption of both iron and B_{12}.

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Lysine-Vitamins

delicious cherry flavor— no unpleasant aftertaste

Average dosage is 1 teaspoonful daily. Available in bottles of 4 and 16 fl. oz.

Each teaspoonful (5 cc.) contains:

l-Lysine HCl	300 mg.
Vitamin B_{12} Crystalline	25 mcgm.
Thiamine HCl (B_1)	10 mg.
Pyridoxine HCl (B_6)	5 mg.
Ferric Pyrophosphate (Soluble)	250 mg.
Iron (as Ferric Pyrophosphate)	30 mg.
Sorbitol	9.5 Gm.

LEDERLE LABORATORIES, a Division of **AMERICAN CYANAMID COMPANY**, Pearl River, New York Lederle

*Reg. U. S. Pat. Off.



why California table wine in the low-sodium diet?

TABLE I[1]

	No. specimens examined	Sodium (mg./100 cc.) Mean
Musts (crushed white grapes)	9	1.63
California Red Table Wines	82	5.56
California White Table Wines	73	5.44
California Dessert Wines	104	7.10

*D*ietary restriction of sodium has become a standard procedure in the control of edema associated with cirrhosis of the liver, congestive heart failure, certain kidney ailments, toxemias of pregnancy, during digitalization and in drug-induced diuresis.

Unfortunately sodium-restricted diets tend to be flat, tasteless, monotonous, leading toward failure of dietary cooperation by the patient.

In such cases California table wine may be employed safely as well as to advantage in making the food more palatable without adding significant amounts of sodium.

In a recent study[1] it was shown that California table wines are remarkably low in sodium content—less than 10 mg. per 100 cc. (3½ ounce glass).

Since recent research [2,3,4] has also shown that wine stimulates a lagging appetite and aids digestion while adding a sparkle to any meal—why not encourage the moderate use of wine by the patient on a restricted dietary, as well as by the sufferer from anorexia, the post-surgical, convalescent or geriatric patient?

May we send you a copy of "Uses of Wine in Medical Practice"? A copy is available to you, at no expense, by writing to: Wine Advisory Board, 717 Market Street, San Francisco 3, California.

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proven effective
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■ does not impair mental efficiency or physical performance ■ relieves both mental and muscular tension ■ does not affect autonomic function

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– the remarkably efficient skeletal muscle relaxant, unique in chemical formulation, and outstanding for sustained action and relative freedom from adverse side effects.

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Summary of four new published clinical studies:

Robaxin Beneficial in 95.6% of Cases of Acute Skeletal Muscle Spasm[1, 2, 5, 6]

CONDITION	NO. PATIENTS	RESPONSE			
STUDY 1[5]		"marked"	moderate	slight	none
Skeletal muscle spasm secondary to acute trauma	33	26	6	1	—
STUDY 2[2]		"pronounced"			
Herniated disc	39	25	13	—	1
Ligamentous strains	8	4	4	—	—
Torticollis	3	3	—	—	—
Whiplash injury	3	2	1	—	—
Contusions, fractures, and muscle soreness due to accidents	5	3	2	—	—
STUDY 3[5]		"excellent"			
Herniated disc	8	6	2	—	—
Acute fibromyositis	8	8	—	—	—
Torticollis	1	—	—	1	—
STUDY 4[6]		"significant"			
Pyramidol tract and acute myalgic disorders	30	27	—	2	1
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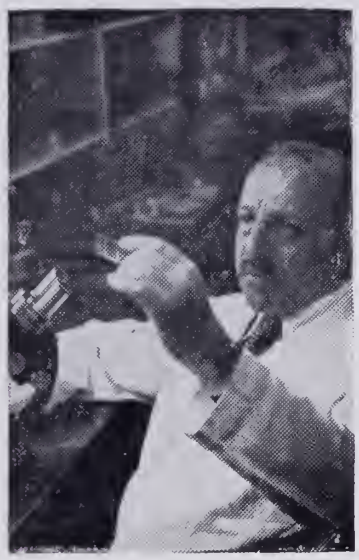
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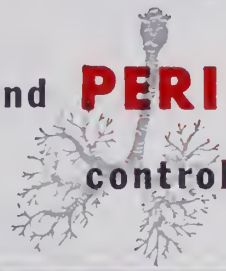
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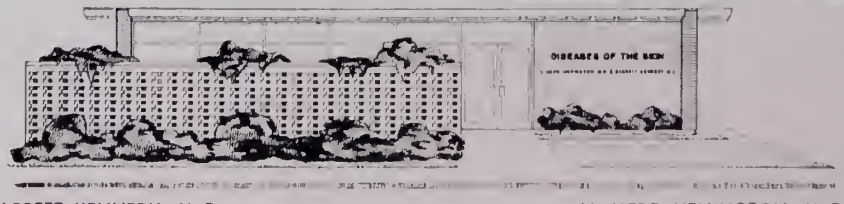
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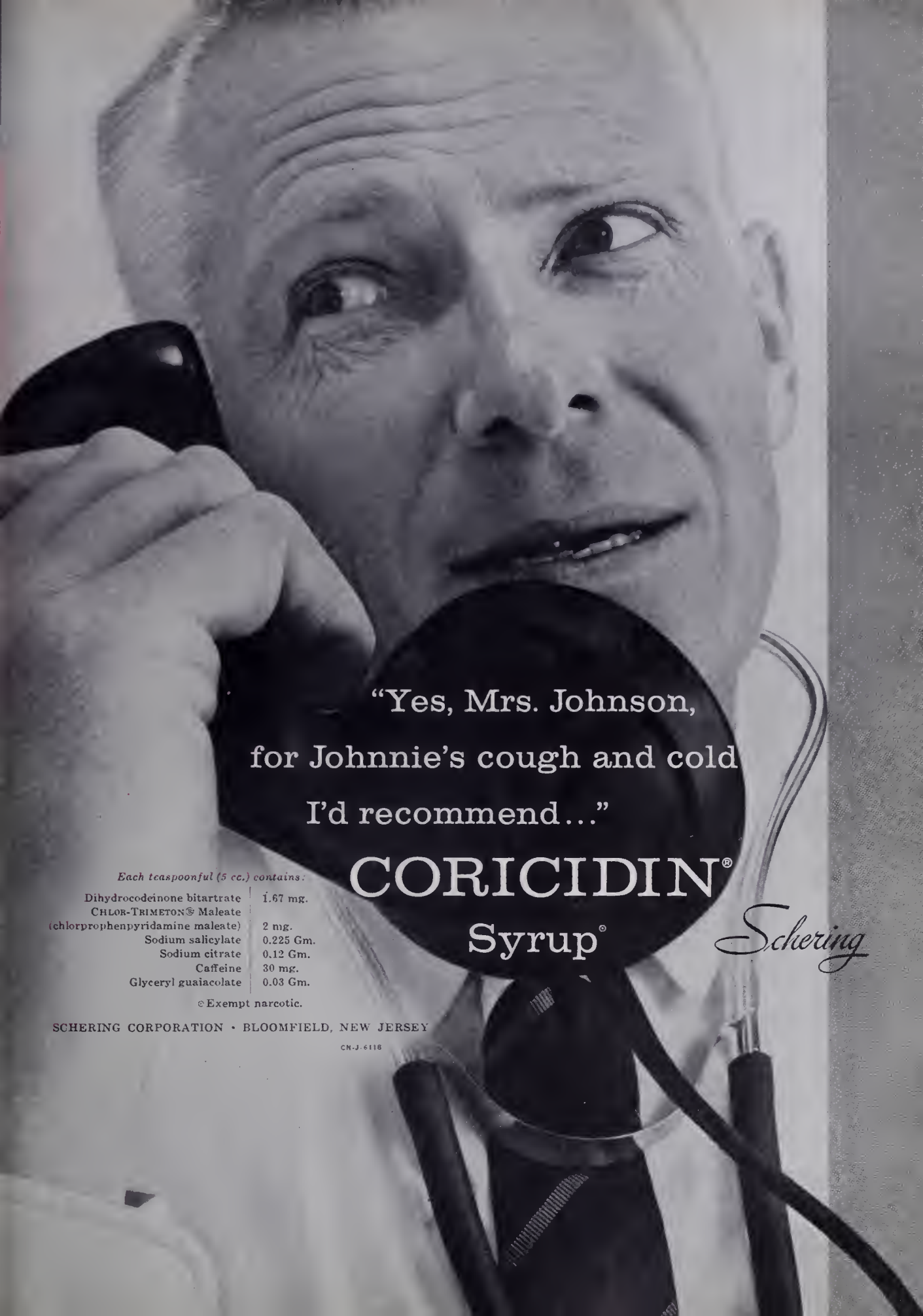
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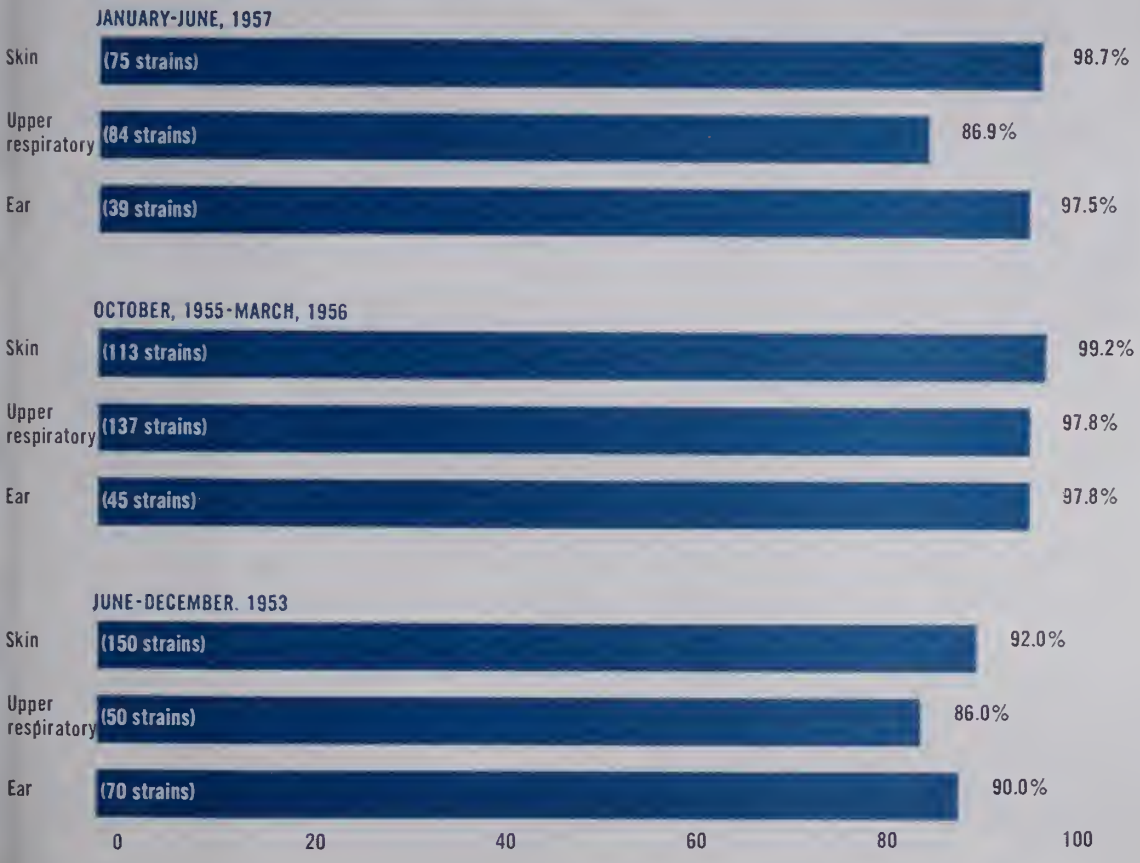
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2. *Shapiro, S.: Observations on the use of meprobamate in cardiovascular disorders. Angiology* **8**:*504, Dec. 1957.*

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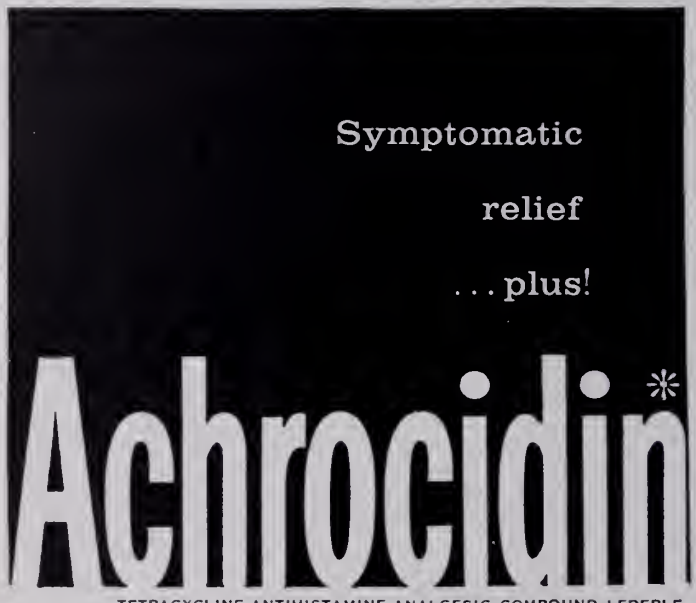
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OBSERVATIONS ON THE NATURAL HISTORY OF ATHEROSCLEROSIS *

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HENRY C. McGILL, JR., M. D.
JACK P. STRONG, M. D.
JACK C. GEER, M.D.

New Orleans

While mental disease is our greatest socio-economic problem, cancer our greatest enigma, arthritis and rheumatism our greatest crippler, and accidents our greatest disgrace, atherosclerosis is by far our greatest killer. How does it kill? The answer to this question will help focus attention on the subject of this presentation and will introduce some of the basic problems involved.

In general, it can be said that atherosclerosis kills by diminishing the blood supply to a vital organ—especially the heart, the brain, the kidneys, the extremities, and the intestines. We do not believe that it is possible to have ischemic disease with normal arteries, for the factor of safety afforded by normal arteries always exceeds any demands. Death from atherosclerosis does not occur without structural change in the arterial wall.

The most dramatic cases—sudden fatalities from heart attacks and strokes—result from sudden closure of a large artery to the heart or to the brain. The two key words here are "sudden" and "large," for the closure may be gradual or involve smaller arteries—in which case the area affected by the cutting off of the blood supply may be insignificant or, if the process develops slowly, collateral circulation may compensate for the occluded vessel.

But what causes the closure of the arteries? The sudden fatalities are usually due to the formation of a thrombus over a plaque or localized area of scarring and hardening in the inner layers of the artery. Those closures with less dramatic clinical pictures, e.g. President Eisenhower's "heart attack" and "mild stroke", may show small hemorrhages in or about the margins of one or more plaques or areas of scarring—or may show only one or more plaques or areas of scarring with narrowing of the lumen. The factor common to all cases of clinical disease—whether fatal or non-fatal, whether mild or severe—is the presence of localized plaques and areas of scarring in the inner layers of the arterial wall.

So our question becomes what causes the localized plaques? In order to approach the answer to this fundamental question it is fitting to describe some of the methods which we are now using in the De-

*Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, in Shreveport, May 6, 1958.

From the Department of Pathology, Louisiana State University, School of Medicine, New Orleans.

This work has been aided by grants from the National Heart Institute, The American Heart Association, and the Louisiana Heart Association.

partment of Pathology at the Louisiana State University School of Medicine in New Orleans.

We have selected the aorta as the largest, most easily obtainable segment of the arterial system to study. The anatomic changes related to atherosclerosis in over 2,000 aortas from post-mortem examinations on individuals, aged 1 to 40, performed in eight geographic areas (New Orleans, Spain, South Africa, England, Puerto Rico, Guatamala, Costa Rica and Columbia) have been studied qualitatively, quantitatively and topographically before and after staining them with Sudan IV, a synthetic dye used to bring out in sharp contrast the early fatty streaks that constitute the first change. More recently these studies have been extended to the decades beyond 40 years and have included studies on the coronary, cerebral and other arteries. The methods have been described and illustrated in recent publications.[1,2]

Our studies to date have indicated that atherosclerosis develops by sequential stages: (1) fatty streak, (2) fibrous plaque or scarred area, (3) complication of lesion such as hemorrhage or thrombosis, and (4) clinical disease. As a matter of fact we had to quit using the terms arteriosclerosis and atherosclerosis because we could not define them satisfactorily. The schema presented in Figure 1 is over-

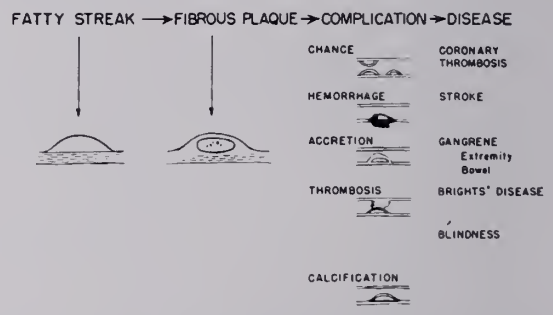


Figure 1.—Concept of pathogenesis
(From Holman, R. L. and others: The natural history of atherosclerosis, Tr. A. Life Ins. Directors America, 40:86, 1956)

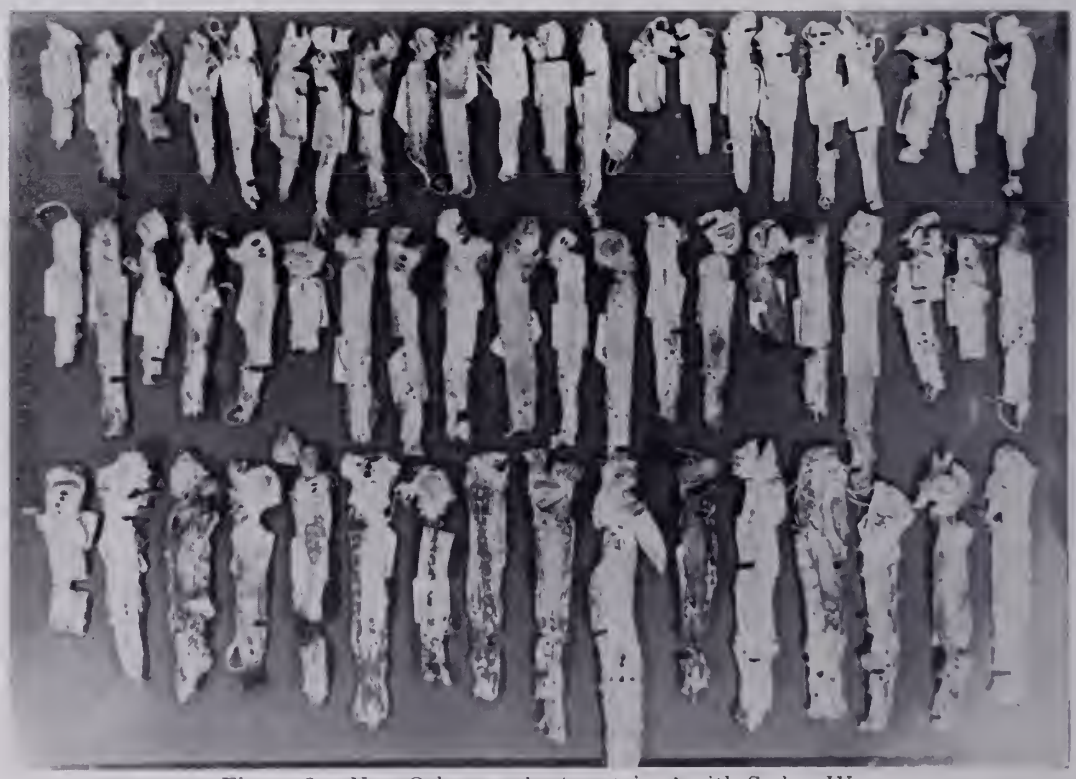


Figure 2.—New Orleans—Aortas stained with Sudan IV.

Top row: Ages 1 to 3, less than 1% involved; Second row: Ages 4 to 10, 5.5% of surface involved. Third row: Ages 11 to 20, 24% of surface involved.

(From Holman, R. L., and others: The natural history of atherosclerosis, Tr. A. Life Ins. Directors America, 40:86, 1956)

simplified but we have found that we can use the terms "fatty streak", "fibrous plaque", "complicated lesions" and "clinical disease" with confidence, and we are convinced that each of these stages is a necessary precursor for the following one.

FATTY STREAKS

So our basic question is pushed another step backward—not what causes the localized fibrous plaque but what causes the fatty streak. This concept of the stepwise or sequential stage development of the process—(1) fatty streak, (2) fibrous plaque, (3) complication of lesion and (4) clinical disease—is necessary to understand all the changes that we see in the arterial system of man and to describe the natural history of human atherosclerosis.

Most of our studies to date have been directed toward the first stage, *fatty streak*, as we are convinced that prevention or retardation of this stage will prevent or retard all subsequent stages.

(1) No fatty streak—no fibrous plaque.
(2) No fibrous plaque—no complication.
(3) No complication—no clinical disease.

If each link in this chain of pathogenesis is sound, **No fatty streak—No clinical disease.**

Figures 2 to 5 illustrate some of the aortas that we have collected in various parts of the world. When we tabulate the average percentage of the intimal surface that stains red with Sudan IV, i.e. the percentage involved by fatty streaks, at the different five year periods it becomes possible to present the data for a given area in bar graph form such as is seen in Figure 6.

One of the first questions that occurred to us was, How accurately do these changes seen in blood vessels at post-mortem examination reflect the changes in the living population? Could the changes that we were seeing be related to the



Figure 3.—Spain—Aortas stained with Sudan IV.

Top row: Ages 1 to 10, 5% of surface involved. Bottom row: Ages 11 to 20, 25% of surface involved.

terminal illness? To answer these vital questions we collected aortas from 122 cases of accidental death—auto accidents, gun shot wounds, poisonings, and the like—from the Office of the Coroner in Orleans Parish. The results for 54 cases in the white race shown in Figure 6 have convinced us that the degree of fatty streaking of the aorta in cases of sudden accidental death is as great or greater than that in cases of death due to natural causes. And we can add that the same is true of the coronary arteries. Thus the terminal illness is not the determining factor and the changes that we are seeing are representative of the living population.

As mentioned previously we have collected over 2,000 aortas from eight widely scattered geographic areas with marked variation in genetic and environmental background. We have been surprised to find how similar the degree of fatty streaking of the aorta has been in all parts of the world thus far studied. Every child beyond the age of 3 years in all parts of the world thus far sampled has shown some degree of sudanophilic fatty streaking of the aorta and this has been confirmed by microscopic studies. This has raised serious fundamental questions about (1) the definition of "normal" and (2) about the relationship of diet, high blood pressure, and other supposed causative factors to atherogenesis—the first stage of atherosclerosis.

This does not mean that the degree of this change is the same in all individuals in a given area or that it is correlated



Figure 4.—Costa Rica—Aortas stained with Sudan IV.

Top row: Ages 1 to 10, 4% of surface involved. Bottom row: Ages 11 to 20, 22% of surface involved.

with chronological age, for we have seen many individuals in their fourth decade who have less fatty streaking than do others in their first or second decades.[2] But in all parts of the world that have been studied thus far, a rapid increase in fatty streaks has occurred between the ages of 8 to 18 years. This has suggested a relationship of atherogenesis to hormonal changes of puberty.

One of the most unexpected findings in our studies to date is depicted in Figure 7; namely, the differences between the Negro and white races in the New Orleans area around the age of puberty. At age 13, for example, the Negro aorta shows four times as much fatty streaking as does the white, and this racial difference is consistently noted in the females in the subsequent age groups (Fig. 8). This has been the biggest difference that we have encountered anywhere in the world. The Guatemalan Ladino and the Bantu of South Africa have not shown this early onset and increased degree of fatty streaking in the 11 to 15 year group, and we have no satisfactory explanation for it.

DEVELOPMENTS FACILITATING STUDY

We do not mean to leave the impression that all of these findings are new, for others[3-5] have studied the early lesions of atherosclerosis in somewhat the same way and with somewhat similar findings but there have been three important developments in the past two decades that have greatly facilitated these studies and have opened up new horizons and possibilities that have not been fully explored. These are: (1) greatly increased facilities for communication and transportation, (2)



Figure 5.—Durban, South Africa—Bantu aortas stained with Sudan IV.
Top row: Ages 1 to 10, 5% of surface involved. Bottom row: Ages 11 to 20, 18% of surface involved.

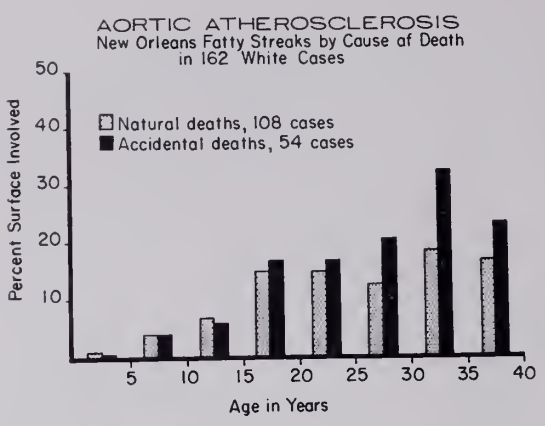


Figure 6

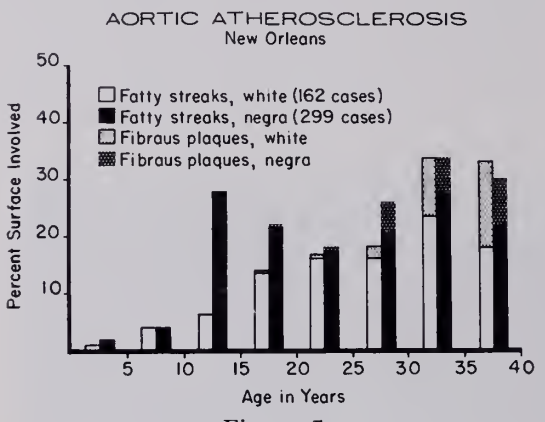


Figure 7

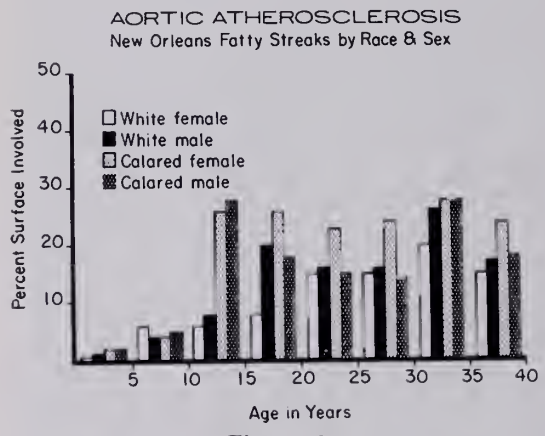


Figure 8

greatly increased facilities for statistical analyses as by IBM machines and (3) a very simple technical advance that we have introduced in the past year—namely the preservation of anatomic material in flat, transparent, durable water tight plastic bags. The methods we are now using are described and illustrated in a recent publication.[1]

This simple procedure has greatly facilitated the study of arterial lesions, for it has made possible the storage of aortas and other arteries in a form readily available for gross, microscopic, chemical, histochemical and other studies and for easy shipment between laboratories in various geographic areas. Furthermore, it has almost converted the study into a game, for it has removed the necessity of putting on gloves and a gas mask to combat formalin fumes and has allowed us to shuffle and sort out the specimens in much the same manner as one would a deck of cards. Certainly we can divide the "red cards"—the aortas showing only fatty streaks from the "black cards"—those showing fibrous plaques and more complicated lesions—and arrange each type of lesion in quantitative stacks in much the same way that one would arrange a suite of cards in sequence. Having done this, we can refer the code numbers in each stack back to the biostatistician for a variety of statistical analyses such as age, sex, race, geographic area, principal cause of death and such associated conditions as overweight, underweight, diabetes, hypertension, hypercholesterolemia, hypothyroidism, kidney disease, and other conditions that are thought to play a role in the natural history of atherosclerosis. And we are certain that a wide variety of new techniques could be applied to the preserved specimens that we now have—including densitometric studies, electronic scanning and refined microchemical techniques.

FIBROUS PLAQUES

We have seen the "red cards" (the fatty streaks), let us take a look at one of the "black cards"—or fibrous plaques (Fig. 9), the second stage in the development of atherosclerosis—the second link in the chain of pathogenesis that in some cases leads on to clinical disease. We see that a fibrous capsule of scar tissue has surrounded the lipid material and has converted it to a white fibrous plaque that no longer stains with Sudan IV.

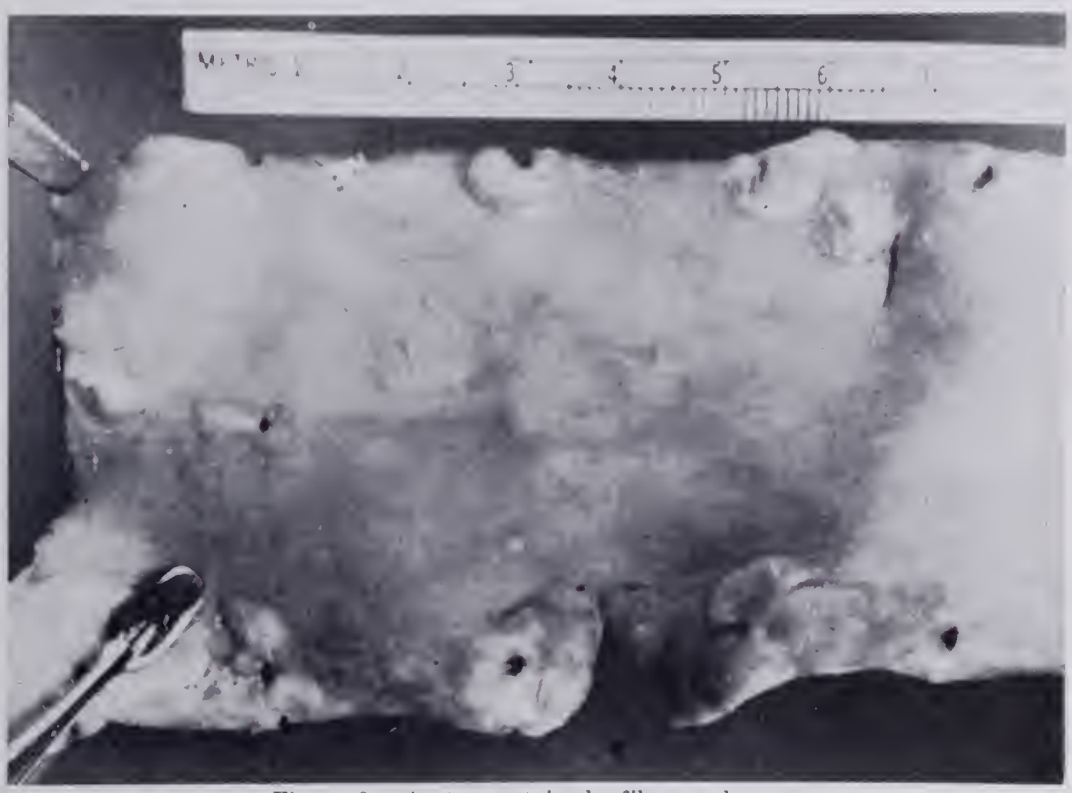


Figure 9.—Aorta, unstained—fibrous plaques.

(From Holman, R. L., and others: The natural history of atherosclerosis, Tr. A. Life Ins. M. Directors America 40:86, 1956)

What is the natural history of this stage of atherosclerosis? If we compare the two races in the New Orleans area (Figure 7), we see that the rate of development of this process differs from that of the first stage (fatty streak)—that a period of fifteen to twenty years must elapse before any of the fatty streaks are converted into a fibrous plaque. We also see that the bar for the white race exceeds that for the colored race in the fourth decade (Figure 10). Further, the corresponding bars for the Guatemalans and Costa Ricans show the first real break in the natural history of atherosclerosis that might dovetail with the marked differences in the incidence of heart attacks and strokes that have been reported in these geographic areas. In various reports, heart attacks have occurred three to ten times more frequently in the United States than in these two Central American countries.

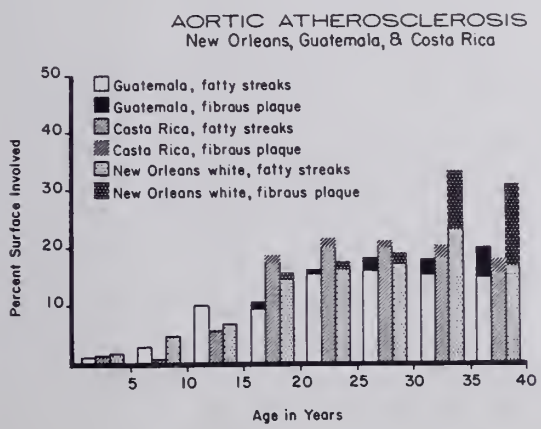


Figure 10

What does all this mean? Why is the same incidence of fatty streaks in the New Orleans whites, the Guatemalan Indians, and the Costa Rican Spanish followed by a strikingly different incidence of fibrous plaques? And why is a greater incidence of fatty streaks in the New Orleans Negroes followed by a lesser incidence of fibrous plaques? We do not know the answer to these questions but the very fact that we are asking them points up one of the most significant findings in our

studies to date—namely that different factors may be involved in the different stages of atherosclerosis. The factors that are responsible for each succeeding stage of atherosclerosis may be and probably are different from those that initiated the first stage (atherogenesis). Thus intelligent therapy and prophylaxis must take cognizance of these different stages, for what may be effective against one stage may be ineffective or even contraindicated against another stage.

We have good evidence that the fatty streak is reversible but we do not yet know the factors that control reversibility. Is it a difference in the chemical composition of the fatty substances that accumulate in the inner layers of the arterial wall? Do certain combinations of fatty substances—triglycerides, cholesterol and its esters, and phospholipids such as lecithin and sphingomyelin—predispose to reversibility while other combinations act as an irritant and stir up the fibrous tissue reactions that convert certain fatty streaks to fibrous plaques with blood vessels growing into and about its margins—blood vessels that set the stage for complications and clinical disease. We need this information badly and we are convinced that intelligent use of existing microchemical methods could supply this information. We are also convinced that when these chemical data are framed accurately in the dynamic concept of pathogenesis that is emerging, we will be able to find hormones, enzymes, or other substances that will favor reversibility rather than progression to crippling and fatal disease. The contention that we could do something about atheroclerosis if we only knew whether or not lesions were present is no longer valid. There is no question about the presence or absence of lesions, there is only a question of how much of what kinds of lesions and where they are located.

The natural history of atherosclerosis is the background against which any attempt at therapy or prevention must be measured and the fatty streak is the most promising point of attack, for it is reversible. We must know what will happen if we do nothing before we can accurately assess the effectiveness of any therapeutic or prophylactic effort. And this will become possible as we draw a sharp base line of expectancy in cases with high anticipated mortality in children in whom only reversible fatty streaks are found—a base line against which the effectiveness of hormonal, enzymic and other therapeutic measures can be tested.

SUMMARY

The natural history of atherosclerosis as we have seen it in over 2,000 aortas and several hundred coronary arteries collected from eight widely scattered geographic areas has indicated:

1. That the tempo of the natural history of atherosclerosis is in terms of months, years and decades—not that of three meals a day.

2. That atherosclerosis develops by definite sequential stages: (1) fatty streaks, (2) fibrous plaques, (3) complications of lesions and (4) clinical disease.

3. That each stage is a necessary precursor for the following one and that the causative mechanisms probably differ with each stage.

4. That everyone above three years of age has some degree of fatty streaking.

5. That the degree of fatty streaking in various geographic areas of the world is similar, and in all areas there is a rapid increase in fatty streaking between 8 and 18 years, suggesting a relationship to the hormonal changes of puberty.

6. That an interval of approximately 15 to 20 years lapses before some fatty streaks are converted to fibrous plaques.

7. That the rate of conversion of fatty streaks to fibrous plaques varies in different geographic areas and this variance in fibrous plaques correlates with morbidity and mortality statistics related to myocardial infarction; whereas the prevalence of fatty streaks does not.

8. That fatty streaks are reversible; whereas the potential for reversibility of fibrous plaques is limited.

9. That the best hope lies in prevent-

ing, retarding or reversing fatty streaks and that available microchemical methods should yield pertinent data on this point.

10. That the problem of prevention of atherosclerosis is basically a pediatric problem.

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THE CARE AND TREATMENT OF THE MENTALLY ILL IN ANTE-BELLUM LOUISIANA

ROBERT C. REINDERS *

New Orleans

It is essential for individuals in all professions to see where they have been—to view origins. The sheer size and number of our mental hospitals and the prodigious amount of psychiatric literature have blinded us to that period in American history when psychiatric treatment was in its infancy. It is hoped here to present a study of one Southern state and its effort to meet the problems of mental illness in the period before the Civil War. In the process of reviewing the experience of ante-bellum Louisiana, we will incidentally also depict the national currents in psychiatric treatment and hospital care, for, as will be stated below, Louisiana in this era was not too significantly different in these regards from other states.

COLONIAL PERIOD

During the colonial period of Louisiana's history, which covered, roughly speaking, the Eighteenth Century, there is no mention in local records of the incidence or treatment of insanity. But there undoubtedly were cases of insanity and it may be assumed that treatment in the colony followed the general European practices. The insane were lodged in local prisons until such time as they could be released. The less harmful types were allowed to wander at large. However in view of certain fortunate conditions in Louisiana society—the smallness of the population, the wealth of the planter class, the dominant rural character of Louisiana—the inhumanity of contemporary European care, so vividly described by Pinel, was not found in Louisiana.

In 1803, as a result of the Louisiana Purchase, the area which now comprises the State of Louisiana came under the flag of the United States. Thousands of Americans poured into the new territory, the population of New Orleans alone increasing from 7,000 in 1803 to 41,000 in 1820. As the population increased, a corresponding increase in the prevalence of mental illness became a problem to the officials of the state. Legally, the Spanish Civil Code was maintained with slight modifications. Under this system a parish judge was acquainted with the facts of each case and on the basis of his understanding he could commit the individual to care either in his own home or in a "bettering house." During the period of the patient's care, his property was protected by the state and any revenue derived from the property was to be used for his maintenance. This system had little relevance for the pauper insane who would of course be unable to provide for their own needs. For these unfortunates, there were, in the early years of the Nineteenth Century, only the prisons. According to the New Orleans Police Code for 1808: "If a dangerous madman has no relative he shall be placed in a good and secure custody [i.e., prison] in such place as the mayor may judge proper and

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shall be maintained and clothed at the expense of the city."[1] In the rural areas the local parish judges were empowered to commit the indigent insane to local prisons or workhouses and later, by law, to have them sent to the state penitentiary. One can imagine the treatment of the insane under prison conditions.

CHARITY HOSPITAL

The first public institution to care for and treat the mentally ill was the New Orleans Charity Hospital. Founded in 1734, this hospital was intended to care for the impoverished ill in the city. In keeping with its character as an almshouse infirmary, the hospital may have administered to some insane from its inception, but it was not until 1820 that one wing of the hospital was set aside for the mentally ill. When a new Charity Hospital was opened in 1834, a similar arrangement was followed. The patients were chiefly from the New Orleans area, though judges from rural parishes occasionally committed patients to the care of Charity Hospital.

The growth of the city and attendant epidemics severely taxed the hospital's facilities; therefore, it was decided in 1840 to construct a "suitable building to lodge insane persons" behind Charity Hospital.[2] The Sisters of Charity, who operated the hospital, were to take charge of the new building, which would be considered as part of the hospital. The new "Lunatic Asylum" was designed to serve the entire state, although parish judges committed some insane to the state penitentiary as late as 1847.

The new asylum, which marks the first public building designed for the care of mental illness in Louisiana, was described by a local writer in 1844.

> This building is 103 feet long by 35 feet broad and three stories high. A gallery extends the whole length and height of the house in front, and affords a fine promenade: A passage of 9 feet wide runs through the whole length of the building on each floor. On each side of the passages, the rooms open, 38 in number, well supplied with light and air, and with doors and windows well secured. The stairs run up at the end of the house, and occupy but little space. At the opposite end from the entrance is the bathing room. . . .
>
> The third story of the asylum is divided into two spacious sleeping apartments. At each end of the building are spacious arbours which are covered with vines, affording an admirable shade in warm weather. These with the grounds immediately around the Asylum, are well adopted for exercise in the open air.[3]

The hospital was located at what was then the edge of the city, and was relatively free from urban noises and disturbances.

Throughout most of its use as an insane asylum, the new building accommodated between 70 and 90 patients. As many as half of the total were discharged each month and the death rate varied from 3 to 7 monthly. The places left absent by the discharged and the deceased were quickly filled. During 1847, the last full year of use, the asylum admitted 678 patients and discharged 541, and 85 died. Both white and Negro were found in the hospital.

Very little is known about the treatment accorded the mentally ill at the Charity Hospital asylum, but in keeping with contemporary practice, it is reasonable to assume that simple rest was the prescribed cure-all. It is known that the building was equipped with a shower bath which was used to calm the more excitable patients. If the Sisters of Charity were as devoted to the care of the insane as they were of the physically ill, one can safely assume that the asylum was far removed from many of the contemporary Bedlams. Indeed, Dorthea Lynde Dix, who visited the asylum in 1846, remarked that she found "incomparably more to approve than to censure."[4]

However well run the asylum might have been, it was unable to surmount certain problems which soon lessened its efficiency. By the mid-1840's, the increase of population and the greater tendency of parish judges to commit the insane to Charity Hospital, led to overcrowding. By late 1847, the asylum housed 125 patients. During

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[1] Quoted in, Elizabeth Wisner, *Public Welfare Administration in Louisiana* (Chicago, 1930), p. 85.

[2] *Louisiana Acts*, 1840 (No. 114), pp. 125-126.

[3] "Historical Sketch of the Charity Hospital," *New Orleans Medical and Surgical Journal*, I (May, 1844), p. 73.

[4] Quoted in, Helen E. Marshall, *Dorthea Dix: Forgotten Samaritan* (Chapel Hill, 1937), p. 112.

these years there was also an increase of patients in the hospital proper. The severe epidemics of cholera, small pox, typhoid, and yellow fever, which struck the poor in particular, filled the rooms, corridors, messrooms, sections of the medical school amphitheatre, and even the Sisters' private apartments. In order to obtain more room, many sick were transferred to the mental hospital. Though the Board of Administrators of Charity Hospital admitted that the "impropriety and cruelty of placing the small pox patients under the same roof with the insane, has been felt and regretted," there was little choice.[5] Undoubtedly, the high death rate recorded for 1847 was due to the spread of yellow fever carried to the insane by patients sent from the hospital.

NEW ASYLUM AT JACKSON, LA.

It was obvious from the above conditions that a new and separate state hospital for the mentally ill was necessary. As early as 1845, the Board of Administrators of Charity Hospital had insisted upon the erection of a new building for the insane, and in the following year, when Dorthea Dix turned her "irresistible appeal"[6] on the Louisiana legislature, a movement to establish a new hospital for the mentally ill was activated. Miss Dix's entreaties must have been effective, for, with the strong support of Governor Isaac Johnson, a bill to establish a new asylum for the mentally ill was introduced into the state legislature the following year. It passed in February 1847, and was signed by the Governor.

The law declared that the new asylum was to be located at Jackson, Louisiana, in East Feliciana Parish, about thirty miles east of Baton Rouge. For operating expenses the first year, $10,000 was appropriated plus an additional $15,000 for buildings. The Governor was empowered to appoint a five man Board of Administrators who would serve two-year terms.[7] This Board in turn was to make contracts to carry out the law and to employ a doctor, a superintendent, and a matron to operate the asylum. The Board had the further duty periodically to visit the asylum and to furnish the legislature with yearly statistics. It was provided that the insane residents at Charity Hospital were to be transferred to Jackson as soon as possible. The law stated that the power of commitment, formerly held by the parish judge, was now to be vested in the newly established district judge, who was to be responsible for the investigation of "all facts and circumstances of the case" and who, if he should adjudge the individual insane, was to order the sheriff of the parish to take the patient to the state asylum.[8]

By fall of 1848, the first building was completed and on November 21, the mentally ill at Charity Hospital, 85 in number, were transferred to the new asylum. Ironically, the patients who left the overcrowded conditions in New Orleans found no solace in Jackson; the asylum was equipped to handle only 60 patients.

Fortunately, there is an excellent description of the institution made in 1857 by Dr. Stanford Chaillé of New Orleans.[9] The asylum was located on a plot of thirty-one acres, much of it wooded, a few miles from the small town of Jackson. The chief structure was a central building with two attached wings. Architecturally the building was typical of the Greek-Revival style current in ante-bellum Louisiana; the attempt to prevent the asylum from resembling a prison was evidently successful. The central building was four stories high and it contained apartments for the superintendent and his family, offices and recreation rooms, parlors, a chapel, six dining rooms, and dormitories for pay patients. A basement floor provided storage space and con-

[5] "Report of the Board of Administrators of the Charity Hospital of Louisiana," bound with the Senate of the State of Louisiana, *Journal*, 1843-1844 (New Orleans, 1844).

[6] "American Hospitals for the Insane," *North American Review*, LXXIX (July, 1854), p. 71.

[7] In 1855 the Board of Administrators was increased to eight men with four year terms and the Governor was made an ex-officio member.

[8] *Louisiana Acts*, 1847 (No. 69), pp. 56-58.

[9] Stanford Chaillé, "Insane Asylum of the State of Louisiana," *New Orleans Medical and Surgical Journal*, XIV (January, 1858), pp. 103-124.

tained the hot air furnace. The wings were duplicate buildings to house the male and female patients. The wings were three stories high, with a wide gallery on the south and west sides of each story. The first and second stories were divided into nineteen rooms; fifteen single rooms and four large rooms—the latter large enough to double as day rooms and offices. The third stories were divided into six large rooms which served as dormitories and day parlors. A wide hall separated the rooms. In addition to the central structure, there were two detached buildings, furnished in 1857, to provide temporary confinement of violent patients of each sex. They were long structures apparently one story high, with nine rooms accommodating two or more patients in each room. Though Dr. Chaillé did not mention other buildings on the institution grounds, other sources reveal three frame houses which were on the land when it was purchased. Used at one time to take care of an overflow from the incompleted main building and for detention of the more seriously deranged patients, by 1857 they served principally for storage.

Administration of the new institution was originally conducted by a superintendent and matron, Mr. and Mrs. Willian D. Collins. They in turn appointed a small staff. A physician, W. H. Selby from Jackson, was appointed to make a daily check of the sick patients. Two years later the Collinses were replaced by Mr. and Mrs. James King, and James Pond, from Jackson, became the institution's physician. There was a good deal of criticism of the specific personalities involved and of the system of separating the function of physician and superintendent. The result was the appointment in 1855 of Dr. G. Meyberry who combined the duty of physician and superintendent. His wife served as matron. The Meyberrys were replaced in 1857 by Dr. and Mrs. J. D. Barkdull who operated the hospital with conspicuous success until his death in 1865. The superintendent-physician received lodging for his family (up to three members) and a salary of $1,500—increased to $3,000 in 1859. The staff of the asylum had been increased over the years and numbered twenty-one by 1858. This made an attendant-patient ratio of about one to seven.

ADMISSIONS AT JACKSON

The asylum opened, as noted above, with an initial 85 patients. As the new wings were added to the central building and other buildings completed, more patients were accepted; by 1860, there were 144 mentally ill in the institution. The largest number of patients were listed as "state patients"; that is, they were declared in "indigent circumstances" by a police jury or municipal council. While there was some question about the "indigence" of some of these, undoubtedly most of the patients were impoverished. Wealthy citizens commonly sent their mentally ill to sanitariums in the North, or cared for them within the confines of the home. There is no record of a private sanitarium existing in Louisiana. For those who were neither indigent nor wealthy enough to secure private care, there were facilities at Jackson for pay patients. They were housed in the central portion with separate quarters, dining facilities, and private exercise yard. Depending upon accommodations, the pay patients were charged between $12.50 and $50.00 a month. As the hospital became better known, pay patients increased in number from 5 in 1853 to 28 five years later. In 1859 they paid $3,799, or nearly one-sixth of the total operating expenses.

Orleans Parish furnished by far the largest number of patients—538 of 879 in the years 1847 to 1860—although the parish accounted for less than a fourth of the population of the state. Foreign born made up most of the New Orleans group, at one time accounting for 74 per cent of the total committed from the city. These immigrant patients were generally young—twenty to forty years of age—and had a history of chronic unemployment as unskilled laborers and servants. There were undoubtedly several reasons for the preponderance of the foreign born in the hospital: social isolation and value conflicts of an immigrant group in a new country; toxic psychosis resulting from the frequent yellow fever epidemics

which struck with special furor among the poorer classes; and the tendency of New Orleans officials to reduce the city's growing workhouse population by sending them to the asylum—it was "more an almshouse than an Insane Asylum," complained one asylum administrator.[10]

The Jackson institution also contained a handful of slaves and free Negroes. The slaves were supported by their owners, though Dr. Chaillé noticed in 1857 that there were no slaves in the asylum at the time of his visit; he concluded that the owners were unwilling to pay the required $150 for yearly care of a slave. There is no evidence of racial segregation among the state patients.

CONDITIONS AT JACKSON

The conditions at the asylum varied according to the degree of crowding and the changes of superintendents; the reports of the conditions however varied with the political affinities or humanitarianism of the legislative delegates who visited the Jackson asylum. But one factor was obvious in all reports: there was never enough space to shelter adequately all of the patients. Construction of new buildings was held up by the failure of the legislature to provide necessary appropriations and by the frequent failure of contractors to supply building materials at the proper time. There was even some talk in 1858 of a graft of asylum funds appropriated for construction purposes. Since the buildings were relatively new, the problem of repair was not acute; however, Dr. Chaillé reported that the central building and the wings were showing wear.

The rooms and dormitories were considered spacious enough, but again conditions depended upon the ability of the administration to handle an increasing patient load. One legislative committee complained in 1852 that they had observed fifteen people confined in one room. More bitter was Representative Lacoste. Conditions he said were wretched:

> I caused several of the cells which were shut to be opened. In the first of these cells I found an unfortunate woman almost naked, and covered with her own excrements. In the second, I found another woman who had a piece of cloth, no larger than a handkerchief, with which she was trying to hide her nakedness. I then asked the guardian, who was walking with me, why these women had no clothes; upon which he answered, that in their fits of frenzy they tore them. Why should they not, then, have a blanket and should not their rooms be warmed by the calorific machines [hot air furnace] adopted by the establishment[?] [11]

Conditions evidently improved, but as late as 1858 a legislative committee criticized the superintendent and the trustees for the "horribly filthy condition" of the detached buildings.[12]

Judging by the official reports, food in the early years of the asylum must have been cheap, inadequate, and monotonous. In 1852, a legislator reported that breakfast was composed of bread and coffee; dinner of a tin cup full of corn soup containing a small piece of boiled meat and a piece of bread; supper of tea and bread. Under Meyberry and Barkdull the diet became more varied as more money was spent for "small groceries" and the institution was supplied with foodstuffs obtained from their own garden plots. The pay patients were fed more wholesome meals, sharing the same table with the superintendent and his family.

Clothing appropriations were skimpy in the first decade of the institution's operation; Representative Lacoste reported that the women were badly dressed and barefooted. The clothing problem was somewhat alleviated by increased clothing allotments and by the introduction of sewing rooms where the less disturbed patients made clothes for their fellow inmates.

MORBIDITY AND MORTALITY

The health of the patients was far from good. There were several factors which contributed to the prevalence of illness in the asylum. (1) Patients sent to the hospital

[10] Administrators of the Insane Asylum, *Report*, 1855 (New Orleans, 1855), p. 8.

[11] Report from Committee on Charitable Institutions," bound with *Louisiana Reports*, 1852.

[12] *Memorial of the Late Board of Administrators of the Insane Asylum at Jackson Together with the Reply of the Present Board of Administrators and the Report of the Special Committee to whom Was Referred the Memorial of the Late Administrators* (Baton Rouge, 1858), p. 10. This was the same committee that investigated rumors of graft at the asylum. No legal charges were brought against the old Board of Trustees.

were often sickly or suffering from malnutrition. "Many are sent here," an asylum report stated, "in the last stages of bodily disease, and [their] prospect is speedy death."[13] (2) For nearly half of the antebellum period the only medical attention the patients could expect was a daily visit by a Jackson doctor, who quite naturally could hardly hope to meet emergency cases and who had his own local practice to attend. With the appointment of a superintendent-physician the patients were guaranteed better medical treatment. Unfortunately, the original suggestion that the asylum be constructed in or near New Orleans in order to benefit from the medical facilities of Charity Hospital was ignored by the state legislature. (3) The overcrowded conditions of the asylum made the ravages of epidemical diseases inevitable, of which the most common was diarrhea. The problem of epidemical diseases was heightened by the inability to isolate the sick from the healthy due to the failure of the legislature to appropriate funds for an infirmary.

The above situation could only lead, by modern standards, to a fantastically high death rate. For the period 1847-1860, of the 932 patients admitted 408 died while in the asylum. Or to look at it in another manner, nearly every other individual who entered the institution found his "release" in death.

ANTE-BELLUM LISTING OF CAUSES OF INSANITY

Before discussing treatment at the Jackson asylum, it might be well to investigate the causes of insanity as proposed by the superintendents, for it is obvious that their diagnosis would to some extent affect their concepts of treatment. This relationship was recognized by superintendent James King, who stated in 1852:

> Here are congregated the grave and gay, the educated and ignorant, the virtuous and the depraved, exhibiting every degree of insanity, from the furious maniac to the harmless imbecile. To separate and classify these, according to the character of the patient, and the nature of his disease, is one of the surest means to effect their restoration.[14]

[13] Administrators of the Insane Asylum, *Report*, 1855, p. 8.

[14] Administrators of the Insane Asylum, *Report*, 1852 (New Orleans, 1852), p. 11.

Most of the annual reports of the state asylum have long lists prepared by the superintendents which depict the cause of insanity among the patients. The most complete list is taken for the year 1856, when the following "causes" of insanity were listed: Miasmatic Fevers, Intemperance, Demency, Epilepsy, Religious Anxiety, Puerperal Fever, Monomania, Idiocy, Masturbation, Melancholy, Mania, Disappointed Love, Paralysis, Jealousy, Jaundice, Scurvy, Penodicae, Intense Study, Domestic Happiness, Loss of Property, Blows on Head, and Unknown. As can be observed, the superintendents confused symptoms with causes. The one exception was Dr. Barkdull who saw the relation between earlier mental history of the patient and his present mental condition; he bemoaned the fact that few case histories were sent by the courts with the patient. This superintendent attempted to place his patients within a few categories of "Mental Aberration." The following is his table for 1858: Mania Acute, Mania Chronic, Mania with Epilepsy, Mania Periodical, Monomania, Dementia, Dementia with Epilepsy, Imbeciles, Idiotic, Not Insane. Two years later Barkdull reduced the list of mental diseases to six: Mania Acute, Mania Chronic, Dementia, Dementia with Epilepsy, Imbeciles, and Idiots. In reducing mental illness to a few general catagories, Barkdull resembled some of the German psychiatrists of the day, and may have been influenced by them. However, Barkdull evidently found these catagories unacceptable, for in the following year he reverted to listing symptoms.[15]

[15] Mention here might be made of an observation by the New Orleans *Commercial Bulletin* after the yellow fever epidemic of 1853. "The only cause that we have heard alleged for the extraordinary increase of insanity noticeable in the community is the amount of quinine administered for the cure of yellow fever during the recent epidemic. From the singular effects of the drug on the brain, we imagine that those who have ever taken it will be disposed to think the cause a sufficient one." From later scientific knowledge we know of course that quinine has doubtful mental affects; more likely the rate of insanity increased after yellow fever epidemics due to toxic psychosis induced by attacks of fever, or a psychic breakdown precipitated by a personal crisis during the epidemic.

TREATMENT

There was almost no interest in mental illness among the medical fraternity in Louisiana; for example, between 1844 and 1861 only three original articles on insanity or mental hospitals (one of them an extended book review) appeared in the New Orleans medical journals. There are two possible reasons for this seeming indifference. Firstly, the causes of insanity were unknown. Treatment was nonmedical—rest and recuperation in pleasant surroundings. For this a physician was not thought to be needed. Secondly, the rate of insanity was so low and the problems of epidemical diseases so immense, the medical profession could hardly be concerned with an "inconsequential" malady. If 150 people were sent yearly to Jackson, could this compare with 27,000 ill and 8,000 deaths during one five-month yellow fever epidemic in New Orleans alone? Historically speaking, modern psychiatry has been possible only after the medical profession has been freed of the monumental tasks imposed by raging epidemics. First Jenner and Pasteur, then Freud.

In view of the failure of those concerned with the care of the mentally ill to agree on the causes of insanity, or to propose some widely accepted theory, whether right or wrong, it is obvious that a program of treatment would suffer from lack of direction. Indeed the mental institutions of the time assumed the only logical position in view of their ignorance. They simply provided the most decent care possible under the circumstances, hoping that nature would take its course and a goodly percentage of the inmates would be restored to normality. "Kindness and consideration formed the keystone of the whole theoretical structure," Albert Deutsch concludes.[16] Or as Dorthea Dix stated, the only remedy for insanity was to be found in "rightly organized hospitals."[17] This policy was humane, and in many cases it worked.

The overall policy at the Jackson institution was in keeping with the theory of the day; it was, to use one of Dorthea Dix's phrases, a "hospital," a place of rest and recuperation. The physical surroundings were a significant element in cure according to the psychiatric thinking of the age. The geographic location itself was designed to produce the least tension and certainly Jackson, Louisiana, in the antebellum period was isolated from all disturbances. Moreover it was hoped by the trustees to provide the proper physical setting, but their intentions were somewhat greater than their accomplishments. Plans for shady walks, a scenic stone wall, and flowered gardens were never realized. The general appearance of the grounds was slightly slatternly. But at least the institution did not have a prison look characteristic of many mid-Nineteenth Century asylums.

Another necessity urged by contemporary mental health reformers was the isolation of the difficult patients and the sick from the less disturbed and healthier inmates. This was a goal of the Jackson superintendents, but, as noted earlier, the limited funds and the overcrowding prevented this program from being carried out effectively. The construction of two buildings for the more disturbed did provide for isolation of this group. A more difficult problem to face involved dealing with the indiscriminate choice of patients sent by local or state authorities. The state penitentiary transferred several criminal insane to the asylum and, in addition, criminals acquitted on a plea of insanity were committed to the Jackson asylum. They were, lamented one superintendent, a "great annoyance to [the] place."[18] Feeble minded, aged, and infirm were also confined in the state asylum. And in one case a crippled child from Baton Rouge was taken care of at Jackson for lack of a better home for her.

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[16] Albert Deutsch, *The Mentally Ill in America: A History of the Care and Treatment from Colonial Times* (New York, 1946), p. 94.

[17] D. L. Dix, *Memorial Soliciting Enlarged and Improved Accommodations for the Insane of the State of Tennessee by the Establishment of a New Hospital* (Nashville, 1847), p. 4.

[18] Administrators of the Insane Asylum, *Report*, 1859 (Baton Rouge, 1859), p. 13.

One of the revolutionary doctrines of Nineteenth Century mental care concerned the removal of physical restraints. Attendants were to "treat the patients with uniform attention and respect," to speak to them in a "mild and persuasive tone of voice" and never to lay violent hands upon them.[19] The first superintendents of the Jackson asylum seem to have been ignorant of this approach, for, by all accounts, patients were manacled in their rooms, deprived of clothing, beaten, and placed in solitary confinement. All of this changed with superintendent Barkdull who followed the more humane practice of using mechanical restraints only where absolutely necessary. "Solitary confinement, the use of the straight jacket, and corporeal punishment have been almost entirely abandoned," a visiting group of legislators reported in 1859.[20] "It was not necessary," Dr. Barkdull declared, "to chain, whip, or use any harsh means whatever in the management of our patients." "Our experience," he added, "teaches that they [the inmates] cannot be successfully controlled by any other means than those of uniform kindness and forbearance."[21] There is no record that the Louisiana asylum made use of bleeding, narcotics, and cathartics, so highly urged by some doctors in treating mental illness.

RECREATIONAL THERAPY

In order to occupy the patients' attention and as an aid to the restoration of their sanity, some form of recreational therapy was essential. At Jackson one large room was set aside as an entertainment center. Here dances and musical programs were held; on Sunday it doubled as a chapel. The musical taste of the patients was fostered by instruction in vocal and instrumental music. A choir composed of inmates participated in the Sunday services. It was hoped that intellectual pleasures might be provided at the institution by the development of a library, but unfortunately the Louisiana asylum was hard pressed to obtain funds for books. The chief literature sent to the asylum appears to have been largely religious in character—gifts of the American Tract Society. Newspapers were supplied free to the asylum by several New Orleans and Baton Rouge dailies. Catholic and Protestant religious services were probably a form of recreation in the minds of most patients. A Protestant minister waxed enthusiastic about the reception of the Sunday services; only the feeble minded seemed unconcerned.

The above programs were the only form of organized recreation. The administration attempted for several years to obtain horses and a large carriage in which the ladies might be drawn about the grounds. Nothing came of this proposal; the carriage road was not even constructed. A request for equipment for billiards, bagatelles, ten pins, and chess also seems to have fallen on dour legislative ears.

The limitations of the institution's recreational program undoubtedly left a great deal of free time for the inmates. Accordingly Dr. Barkdull formulated a work program which would occupy the patients from four to six hours a day and at the same time help maintain the asylum. Women were assigned to laundry and sewing rooms, while men were employed in the garden, chopping wood, and at various odd jobs about the grounds. Pay patients were not required to participate in these ventures unless they so desired.

RESULTS OF TREATMENT

It would be difficult to ascertain the results of the "rest" treatment at the Jackson asylum. The only statistics available are the rates of discharge, which would be misleading. Patients were evidently discharged if they showed "various degrees of improved mind" because the overcrowded conditions of the asylum and the steady flow of new inmates sent by parish officials demanded removal of a part of the

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[19] *By-Laws Adopted by the Managers of the New Jersey State Lunatic Asylum at Trenton . . . 1847* (Trenton, 1847), pp. 16-17.

[20] *Special Report of the Committee on Charitable Institutions Relative to the Management of the Insane Asylum at Jackson to the Legislature of the State of Louisiana* (Baton Rouge, 1859), p. 4.

[21] Administrators of the Insane Asylum, *Report*, 1859, p. 21.

asylum population yearly.[22] Furthermore no follow-up studies were made by the administrators, nor is there any record of the number of patients who were returned to the asylum. All that can be concluded is that the conditions at the hospital were such, particularly in the last ante-bellum years, that most of the benefits of the "rest" concept of therapy were possible.

ESTABLISHMENT OF TEMPORARY ASYLUM

After 1848, when the state asylum began operation, the treatment of the mentally ill in New Orleans worsened. Charity Hospital continued to care for a handful of mentally ill every year, but out of humanity, not policy. "A hospital devoted to the treatment of disease is an improper asylum for incurable patients" insisted Charity Hospital officials.[23] Governor Johnson urged, without success, special funds for Charity Hospital to care for these cases. Mayor A. D. Crossman of New Orleans contended however that the problem of overcrowding could be alleviated only by the establishment of a second state asylum near New Orleans.

The problem of caring for the insane awaiting transfer to Jackson was left to the city of New Orleans. In 1848, the city obtained the use of a three story wing of the parish prison to house these "temporary" patients. A few insane were also held in a municipal jail.

The condition of the inmates in the parish prison was "truly deplorable," reported a legislative committee in 1852.[24] This view was substantiated by a reporter dispatched to the prison by the New Orleans **Delta.** Here were forty-three persons, twenty-three men and twenty women

> cribbed, cabined, and confined within the dreary limits of a common paved jailyard, destined rather for the temporary confinement of murderers and thieves than persons guilty of no crime or sin which they could control. Not a shrub or flower [on] which the eye can gaze—the blue sky only to be seen above the high walls which surround them—hemmed in on every side—they know no pleasure—no recreation—but all is dull, miserable, monotony, only confining, not relieving their disease.

The clothing provided the inmates was "of the coarsest kind, and such as are used for the uniforms of the most abandoned wretches of the workhouse, or the prison." The mentally ill were fed a "miserable and inadequate diet" of the "cheapest and poorest quality." It was the reporter's view—shared at the time by a few members of the city common council—that part of the food budget alloted to the insane was pocketed by prison officials. One man, paid the wage of a policeman, was in charge of the insane; he was aided by two male and two female assistants who were criminals sent from the workhouse.[25]

Whether the public criticism as found in the above newspaper account had any real effect on the city fathers it would be difficut to determine; but whatever the cause, the common council in 1854 decided to remove the local insane from the parish prison and confine them to the old Third District Workhouse, which was made available after a municipal reorganization in 1852. If any of the mentally ill thought their condition would be improved by this move, they were soon disillusioned. "Call it a lock-up, Calaboose, or mankennel, if it pleases you," Dr. Chaillé wrote bitterly, "for surely no benevolent lexicographer could so outrage humanity and the English language as to justify our city fathers in terming this place an **Asylum.**" Using information provided by Dr. Charles Délèry, the city physician, he pointed out that the place was unsanitary and overcrowded; "lunatics, beggars, and persons affected

[22] Administrators of the Insane Asylum, *Report*, 1852, p. 6. Each year there were a number of patients who "eloped," which was probably a euphemism for "escaped." There is evidence in one case at least that some of these "elopements" may have been encouraged. A superintendent reported that two visitors with the aid of two attendants attempted to use the asylum as a recruiting ground for a New Orleans house of prostitution. In 1855 that state legislature passed a law that provided a fine and/or imprisonment of up to six months for anyone found guilty of aiding a patient to escape.

[23] Board of Administrators of the Charity Hospital, *Report*, 1852, p. 3. Copy appended to the Senate of the State of Louisiana, *Journal*, 1852 (New Orleans, 1852).

[24] House of Representatives of the State of Louisiana, *Journal*, 1853 (New Orleans, 1853), p. 9.

[25] *Weekly Delta*, March 13, 1854.

with delirium tremens only, are all sent, without distinction to the Temporary Asylum,"[26] A study of the record book showing entries and releases at the Temporary Asylum for the Indigent Insane for the period July 2, 1858, to July 21, 1859, presents an additional picture of the inmates. Most of those confined were between twenty and forty years of age, though a ten and a twelve year old were found there as well as a free Negro who was surmised to be one hundred years old. Seventy per cent were foreign born, largely Irish and German. Unless death occurred, and this happened frequently, a patient committed to this "temporary" asylum could count on a long stay. No patient was transferred to Jackson in less than six months after entry. One poor unfortunate entered April 5, 1859, and was removed only upon his death on June, 17, 1864. Many of the "patients" were released on the order of a police judge —a fact implying that the asylum was used as a general prison as much as a place of confinement for the insane. Slaves and free Negroes were also confined to this institution; since no segregation policy was followed in the old parish prison wing, there is no reason to believe that the temporary asylum was segregated. The attendants were prisoners who could reduce their workhouse sentences by serving in the temporary asylum. One wonders how solicitous "Baltimore Jimmy" or "James George, alias M. Bird" were toward their charges.

Dr. Délèry was unable to force the common council to improve conditions at the temporary asylum; the municipal lawmakers were evidently satisfied to vote a few thousand dollars for maintenance and ignore the problem. However, Dr. Délèry was able, by special permission, to transfer certain patients to Jackson without waiting for the required sixty-day period after committment. He also had the power to discharge patients he felt were restored to sanity.

[26] Chaillé, "Insane Asylum of the State of Louisiana," *New Orleans Medical and Surgical Journal*, XIV, 112.

SUMMARY

As the ante-bellum period is reviewed in perspective, it can be said that the treatment of mental illness in Louisiana was probably on par with that of other states. If conditions in New Orleans were bad after 1848, at least facilities improved at Jackson, which was "in no essential respect inferior to the best asylums abroad [i.e., out of Louisiana] and, for many reasons, definitely preferable."[27] The reputation of the asylum drew pay patients from Mississippi, Arkansas, and Texas. Indeed, the treatment of mental illness in Louisiana was probably better in the twenty years before the Civil War than in any other period of the Nineteenth Century. Before 1842, the street, jail, or almshouse was the unpleasant lot of the indigent insane. After the Civil War the state asylum became involved in the graft, dishonesty, and rancor of reconstruction and its aftermath. By all accounts conditions in the Jackson asylum were wretched. Not until the turn of the century was there a real improvement in the care and treatment of mental illness in Louisiana.

[27] *Ibid.*, 114.

RECENT ADVANCES IN MENTAL HEALTH CARE BY THE STATE MENTAL HOSPITAL *

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The treatment program of a mental hospital is no longer limited to isolating the patient from the environment, offering them an asylum from the strains and stresses of the outside world, nor is it simply a matter of giving electric shock or one of the tranquilizing drugs. The treatment selected for a patient in need of care for mental illness may range from seclusion in a quiet room in a mental hospital; through working in the community and spending the evenings and weekends in the hospital, to remaining outside the domiciliary hospital. Between there is a wide range and combination of therapies. We would like to discuss some of the current activities that are being carried out in Central Louisiana State Hospital. These demonstrate something of the current role of the state hospital as a community facility, and as a part of the community.

Spectacular changes have occurred in the relationship of the mental hospital to the community in the last two decades. One reason for this change was the advent of the drastic therapies in the mid-thirties which brought an atmosphere of optimism and enthusiasm to the hospitals. The patient who came into the hospital was likely to go out of the institution earlier and contact with the environment was likely to be better maintained.

During World War II many service men and their wives were subjected to unusual emotional stress with resulting psychiatric illness. This necessitated the expansion of the psychiatric services in the military to a spectacular degree. Many young physicians became acquainted with psychiatry and carried a knowledge and respect for its achievements back into civilian life. A good number of these physicians remained in psychiatry.

As many of you know it was the experience of the military in World War II and in Korea that prolonged hospitalization usually resulted in an inability of the psychiatric patient to return to duty. The military psychiatrist learned more and more to rely upon emergency treatment and a rapid return to duty.

It is a generally recognized fact that when patients become adjusted to the hospital they frequently find it difficult or impossible to return to the community. We feel that activities planned to keep the patient in contact with the community even though hospitalized help to reduce this danger. With that in mind we have developed a number of programs at Central to insure that the patient will not become isolated. Programs in which non-paid personnel come into the hospital for repeated contacts with the patient help to achieve this; other programs in which the patient retains or re-establishes rapid contact with the out-of-hospital community is another.

Whatever the specific activity, it is designed to emphasize the similarity of the patient to the non-patient. This can be

TABLE 1
AVERAGE LENGTH OF HOSPITAL STAY OF DISCHARGED PATIENTS

Year	Days	Year	Days
1947	710	1952-53	360
1948	730	1953-54	260
1949	460	1954-55	210
Statistical Reporting		1955-56	190
Changes to Fiscal		1956-57	170
Year Basis			
1950-51	400		
1951-52	410		

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, May 7, 1958, in Shreveport.

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achieved by mutual activities, or by permitting the patient to retain as many of the rights, *and* responsibilities of the person not under medical care as possible.

Among the activities or facilities we would like to discuss are the volunteer worker, the day hospital, the working-out plan, the foster home and others.

VOLUNTEER WORKERS

The Patient Service Organization is one of the most far-reaching programs at Central. It has resulted from the enthusiasm of a group of dedicated women of the community who have banded together to bring different types of activity from the community to our patients, and to help educate the general public in its relation to this institution. The organization had its beginning in May, 1952, during Mental Health Week when one individual visited the hospital during Open House and was amazed at the exceedingly small number of visitors and the apparent lack of interest of the public. From this small beginning the program has developed into an integral part of the institution. This organization is a Hospital Auxiliary not bound by hospital routine as far as rules, regulations, and supervision is concerned. It has its own officers, committees, and authority to conduct its own program. A member of the hospital staff serves as coordinator in order to facilitate planning and acts in an advisory capacity to help prevent conflicts between the group's activities and those of the various departments of the hospital.

The membership of this organization is composed of persons from civic and cultural clubs, churches of all denominations, music clubs, garden clubs, veterans organizations, Junior Service League, and individuals interested in mental health. There is a total of 40 of these clubs or organizations in the Alexandria and Pineville area participating in this program, and an active membership of approximately 125 individual members. In addition there are 45 affiliated organizations in other areas of the state that contribute to the Volunteer Program. There are several hundred of these affiliated members. The active members work directly on the wards with patients. The affiliated members make contributions.

THE DAY HOSPITAL

Many of you, I am sure, have heard of the so-called Blain Report, which included a suggested 20 year plan for improving mental health in the State of Louisiana. One of the major recommendations in this report was the creation of a Treatment Center which included not only a highly effective clinic, but a day hospital. The day hospital offers a treatment facility whereby the patient who is ill, but who is not disturbing to the community or dangerous to himself may receive the treatment afforded by the mental hospital. Through this program the patient is able at the end of the day to return to his or her family and continue to be a part of the community. This type facility should provide all types of treatment for the mentally ill, including psychotherapy, electric shock, insulin, occupational therapy, carbon dioxide, music and others.

About four years ago there appeared to be a need of a fourth mental hospital to cover the southwest section. It was thought that a treatment center such as described might satisfy this need. In September, 1955, such a center was established at Lafayette, Louisiana. It is maintained by a staff of 14 people with two part-time psychiatrists. (Table 2)

TABLE 2
LAFAYETTE DAY HOSPITAL

Established—September, 1955	
Patients Treated in Two Years—1,200	
Estimated Reduction in Hospital Census—100 Patients	
Treatment Facilities Available	
Psychotherapy	Occupational Therapy
Drug Therapy	Recreational Therapy
Electric Shock	Music Therapy
Insulin	Other Activities

THE WORKING-OUT PROGRAM

The working-out program is a type of activity in which the patient still in need of mental hospital care can resume his occupational activities and still remain in the protective atmosphere of the hospital.

Occasionally the external situation is

such that the patient is unable to return to the home environment. In such a situation the patient may be financially unable to immediately assume the cost of a new living establishment or is too overwhelmed by anxiety to go out and live alone. In certain selected cases when a situation of this sort arises it is possible for the patient to live in the hospital and to go regularly to work in the morning, returning to the hospital in the evening. The hospital offers the patient an opportunity for a type of security in the relationship that he would not find if he had only a furnished room to return to and no one with whom to associate.

Beginning in November of 1956, patients living at Central Louisiana State Hospital, upon the recommendation of their physician, became eligible for placement in the community either on renumertive jobs, or in vocational training in preparation for future positions.

The purpose of this program was threefold: (1) To shorten the stay of the patient at the hospital; (2) to decrease the possibility of his return to the hospital; (3) finally, and perhaps the most important, to help him gradually adjust to community living while still maintaining hospital residency. Table 3 shows what we have been able to do in this area.

TABLE 3
DISTRIBUTION OF PATIENTS FOR JOB PLACEMENT AND TRAINING

	No.	Placed in Employed	Placed in Vocational Training	Unplaced
White Males	18	7	0	11
White Females	27	10	5	12
Colored Males	0	0	0	0
Colored Females	1	0	0	1

Table 4 shows that better than 50 per cent of the patients in this program had been classified as psychotic. Of these 26 psychotic patients, 14 were placed. While the figures are too small to represent a valid indicator, the results favored the placement and adjustment to the job of the group classified as manic-depressive.

HOSPITAL OPEN TO COMMUNITY ACTIVITIES

We have up until now talked to a great extent about the changes that have been seen in the care of the patient, the attitude of the patient, and the resources that are currently available for patient care. Another very important and definite change that we see in many areas is the way in which the hospital has opened itself to the community.

In recent years we have been fortunate in being host for meetings of numerous professional and non-professional groups. These included chaplains, and other religious groups, practical nurses, graduate nurses, medical groups, the State Coroners Association, meetings of social workers, and welfare agencies, occupational and recreational therapists, flower society groups, and others. One recent impressive meeting was that of a local camellia society at which there were presented some 800 specimen blossoms of camellias. These flowers, at the end of the meeting, were placed on the patient's cafeteria tables to be admired by the patients at their breakfast the following morning.

RECREATIONAL FACILITIES

The recreational facilities offered by the hospital are now being shared by the patients and the community. Not infrequently the patients are able to partici-

TABLE 4
DISTRIBUTION OF PATIENTS FOR JOB PLACEMENT AND TRAINING ACCORDING TO STAFF DIAGNOSIS

	No.	Placed in Vocational Employed	Training	Unplaced	Returned *
Schizophrenia (All types)	17	5	2	10	3
Manic-depressive (Psychosis)	5	4	1	0	1
Psychosis (Other)	4	2	0	2	0
Addictive Conditions	9	3	0	6	2
Organic Conditions	2	0	0	2	—
Mental Deficiency	1	0	0	1	—
Non-psychotic Disorders	8	3	2	3	1

* Unable to continue employment or training because of mental symptomatology.

pate with the visitors from the community in various types of recreational activities.

About ten years ago, when we became able to develop a recreational field, we attempted to develop the best softball field in the community. It was not long before our teams were in competition with the local teams, and a short time later we became members of the local Softball League. About this time we also gave the city of Pineville a ball field for the development of their Little League team. Almost daily during the season one could see on one ball field activity between our patients, and members of teams from the community; and on the other and adjacent field a lot of activity and noise from and between teams of the Little Leagues of the community.

MUSIC AND ART THERAPY

Art therapy is a creative activity used as a medium through which a patient can release emotional and nervous tensions. Emphasis is placed on freedom of expression rather than on production of an object. Various types of crafts are used in accordance with the patient's individual needs. Here again is an opportunity for members of the community to come and contribute through their individual interest and talents in the various phases of arts. Groups of patients in this department make field trips to different areas of the community.

The effect of music in the rehabilitation of the mentally ill has long been known. In recent years music therapy in our hospital has become the center of a social rehabilitation program. This has come about because the music activity is highly socialized. The patients function in groups. They plan programs and work together to see that these programs are carried out. When visitors come from outside refreshments are frequently served, and the visitors are shown the courtesies that would be accorded them if they were visiting outside the hospital. In addition to this attention to other people the patients tend to show considerable interest in appearing their best in such situations. This leads to activities aimed at improving their personal appearance and behavior. Thus we can see how this type of activity is much more than simply making or listening to music. It can be utilized as a social rehabilitation program of the first order, and is so used.

Our music department is a member (the only hospital we know of) of the National Federation of Music Clubs. Our patients attend music recitals, community concerts, art shows, and any other activity of this sort put on in the communities. Patients participating in activities in this department are not a select few about the hospital. Activities are put on by schedule and different and entire ward groups come in from time to time for various programs.

EDUCATION

In recent years there have developed more opportunities in the field of vocational rehabilitation for patients in mental hospitals. In this direction we have made attempts at developing our own vocational education system. Thus far we have a trade school in mechanics, where on completion of the courses students are issued a certificate by the Department of Education. I might add at this point that we also have these advantages for our employees. The following is a table showing the patients who have attended these classes since they began in 1955.

TABLE 5
ADULT EDUCATION PATIENTS

	Number Enrolled	Completed Grammar	Completed High School	Average Grade Increase
1955	48	12	2	2.4
1956	67	16	3	2.8
1957-58	93	24	6	3.2

Classes are being conducted for the Colored Service with an enrollment of 24.

Plans are being made to conduct Adult Education Classes on TB Service.

THE FOSTER HOME

The foster home is as useful for many psychiatric patients as it is for many children. There are a number of reasons that can make it impossible for an individual to go back to his own home or to establish a home of his own. Occasionally a patient may be physically ill or infirm

with a chronic illness which necessitates a relatively great amount of inactivity. In such a case the patient will have to be in some sort of environment where care is available. Many chronic psychiatric patients who have been in a hospital for a number of years have lost the independence that is necessary to function on their own in the community. In such instances it is possible for them to be placed in a foster home where they can become self-supporting, but continue to have the support of an environment that is not immediately involved in the family difficulties. Although the potentials of the foster home care have not been fully explored by our hospital, we have placed a number of patients in foster home situations, particularly, people who are eligible for welfare assistance. In recent months, we have, however, become more active in this area. In the last six months, 70 patients, who needed continued nursing care, have been placed in nursing homes as close to their relatives as has been possible. Many of these cases have been old people; whereas, others have been younger debilitated patients for whom the best psychiatric treatment was good nursing care. As we utilize the nursing homes, the more possibilities we see in this direction.

The open hospital is gaining much favor these days. We are becoming increasingly aware that a large proportion of psychiatric patients do not need to be incarcerated behind locked doors but can be treated as are most other patients. They, as a rule, recognize their illness, are willing to remain for care, if care is available, and do not disturb the environment. Current building plans tend to a great extent to reflect this attitude. We now see mental hospital buildings that can be locked to keep people out but not in. The patients can leave but if the doors are closed they are unable to get back into the ward. Perhaps more imporant than this aspect of the open door policy is the change that has taken place within the hospital buildings themselves and within the wards. Many of you are acquainted with the nursing station or the doctor's office carefully protected from the ward by heavy plate glass and locked doors. Not infrequently the doctor's offices are even placed in different buildings.

Some of the new buildings reflect a very marked change from this viewpoint as can be noted when we find nursing stations that are completely open where the patient can come up and talk to the nurse at will, and where the doctor is available to the patient.

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EMPHYSEMA AND COR PULMONALE

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Although there is at present a tendency to call any right ventricular hypertrophy and dilatation *cor pulmonale*, whether it be secondary to lung disease, mitral stenosis, or antecedent left heart disease,[4] the term seems, by its etymology, best reserved for those cardiac conditions which are secondary to disease of the lungs and pulmonary circulation.[8] Except in those areas where schistosomiasis or silicosis are common, a discourse on *cor pulmonale* is largely a discourse on pulmonary emphysema.

COR PULMONALE—ETIOLOGY

If healthy subjects are exposed to hypoxia by the simple maneuver of decreasing the oxygen level of their atmosphere to about 13 per cent, there are measurable changes in pressure relationships in the lung.[28] These involve 25 per cent increase in the mean pulmonary arterial pressure, and an almost 50 per cent increase in the pulmonary arteriolar resistance. These changes occur purely on the basis of hypoxia, with no significant change in the mean pulmon-

* Presented at the Annual Scientific Session, Louisiana Heart Association, May 17, 1958, Lake Charles, Louisiana.

ary capillary pressure or in the pulmonary venous pressure. Under natural conditions of hypoxia such as occur in healthy inhabitants of high altitudes one discovers polycythemia, an increased blood volume, increased chest and lung volumes and increased cardiac output, but normal or slightly elevated pulmonary artery pressures. The heart, although it is enlarged with right ventricular hypertrophy, fills and empties without evidence of failure. Again, these are changes due almost exclusively to hypoxia. In the clinical state this hypoxia is caused by three processes:

I. Restrictions of the pulmonary vascular bed as in silicosis, granulomatoses, primary pulmonary hypertension, chronic recurrent pulmonary emboli, vascular changes of mitral stenosis, schistosomiasis, and, to a small extent, emphysema.

II. "Alveolar-capillary block"[1] as manifested by sarcoidosis, idiopathic alveolar fibrosis, Hamman-Rich disease, berylliosis, and lymphangitic carcinoma.

III. Alveolar hypoventilation from restrictive chest disease, "Pickwick" syndrome, neuromuscular disorders and most important of all, bronchospastic disorders, primarily asthma and obstructive pulmonary emphysema.

Once hypoxia has been induced by one of these processes, certain changes occur. These include polycythemia, once considered secondary to bone marrow anoxia, but recently shown to be related to erythropoietin production;[20] following the polycythemia there is hypervolemia and increased blood viscosity with subsequent increase in cardiac output. There is also significant pulmonary vascular spasm, and in the case of the Group I diseases mentioned above, an actual anatomic restriction of the vascular bed. All these factors tend to produce pulmonary hypertension and its resultant right ventricular hypertrophy, and finally dilatation and failure.[5]

COR PULMONALE—TREATMENT

This failure, in the presence of an increased cardiac output, struggling to maintain adequate blood flow against the pulmonary hypertension and hypervolemia, is a "high output" failure. Nevertheless the paramount method of treatment is digitalis. Experiments have shown that giving digitalis intravenously further increases the cardiac output, but it decreases the right ventricular diastolic pressure and the peripheral venous pressure so that the direct action on the myocardium improves the efficiency of cardiac contraction even in high output failure. It should be mentioned that the heart rate is not a good guide to digitalis dosage in this particular type of failure. These patients should, of course, be on a low salt diet and they should be getting diuretics, two of which need special mention, diamox and ammonium chloride. The hypoventilation of *cor pulmonale* results in increased alveolar carbon dioxide since the carbon dioxide is not being pushed out. This results in retention of carbon dioxide in the arterial blood, which causes pH to drop and a state of acidosis to result. In an attempt to compensate for this acidosis, the renal tubules re-absorb more bicarbonate with a resultant increase in the blood bicarbonate level, and a state of compensated respiratory acidosis results.[19] Diamox, of course, causes diuresis with reduction in pulmonary and peripheral venous congestion, but it also, in some patients, has a direct therapeutic effect by increasing urinary excretion of bicarbonate which drops the blood bicarbonate level.[11] Since the hypercapnia decreases the sensitivity of the respiratory center to changes in carbon dioxide tension, the drop in the blood bicarbonate level may decrease respiratory depression and increase alveoli ventilation, especially during exercise. The notion here is that by lowering the blood carbon dioxide at rest it allows the patient more "room" to increase the blood carbon dioxide during exercise. The usual method of administration is to give two or more tablets daily for four or five days with rest periods in between. It should be noted that this does not work in every patient, but occasionally the results are dramatic. In addition to the changes just mentioned there is an increase in the renal excretion of chloride to compensate for the respiratory acidosis, so these patients usually have hypochloremia (which, inci-

dentally, may become profound when mercury is administered) and this may be avoided by the administration of ammonium chloride if the patient can tolerate it without gastric upset. These patients should have rest, but not complete inactivity because hypostatic pneumonia is more likely in an already impaired lung.

This brings us to the administration of oxygen and the precautions that are essential to its use. All of us have seen, in emergency rooms, patients with decompensated emphysema misdiagnosed as pure cardiacs. An oxygen mask is slapped on, and coma ensues. The principal mechanism which controls our breathing is a centragenic drive for carbon dioxide elimination in the medullary center; but there is also a less sensitive one, normally inactive, which comprises the chemoreceptors of the carotid and aortic bodies innervated respectively by the ninth and tenth cranial nerves. It is triggered largely by oxygen deficit. The patient with emphysema who has long had marked retention of carbon dioxide no longer breathes in response to carbon dioxide excess. He is dependant on his need for oxygen to stimulate his respiration. If oxygen in large doses is administered, with removal of the one stimulus to breathing that the patient had, he goes into coma with further accumulation of carbon dioxide resulting in uncompensated respiratory acidosis, somnolence, stupor, and death.

Finally, the much neglected phlebotomy is indicated in *cor pulmonale* more than in any other form of heart disease. The situation here is that the chronic hypoxia results in polycythemia, increased circulating blood volume and hypervolemia with an increase in hematocrit and blood viscosity. Early this is a compensatory mechanism trying to make up for the impairment of oxygenation of the available red cells by increasing the total red cells reaching the lung, but it soon causes an increase in work load which more than counteracts the initial improvement, and this can best be handled by repeated small phlebotomies which sometimes give miraculous results. Every several days 250 or so ccs. should be removed and the hematocrit kept between 45 or 50 mm.

PULMONARY EMPHYSEMA—ETIOLOGY

From a numerical point-of-view, the overwhelming problem in *cor pulmonale* is the problem of emphysema. From the time an infant breathes its first breath, the respiratory mechanism consists of the forceful pulling in of air through the lifting up of the rib cage by the muscles of respiration, and the depression of the diaphragms from contraction which sucks air into the lung stretching the elastic tissue of the lung like a balloon inside a vacuum chamber, and the passive elastic recoil of the stretched lung forcing the air back out of the chest. It is important to realize that the bronchi and bronchioles are longer and wider during inspiration than they are during expiration, and the degree of bronchiolar obstruction that might be insignificant during inspiration becomes extremely important during expiration. For instance, since the rate of air flow is proportional to the cross sectional area of the bronchus, a reduction of 40 per cent in the cross section of the bronchus on inspiration would amount to perhaps 70 per cent of expiration, and as you can see, this would result in a tremendous impairment to expiration. The obstructions to which we refer are primarily asthmatic bronchitis, bronchospasm, and purulent bronchitis although it is not uncommon to see fulminating emphysema following the violent coughing that results from virus pneumonia.

The bronchitis and bronchospasm cause expiratory obstruction; expiratory obstruction causes a chronic state of alveolar distention, and subsequently there is dilatation of the alveolar ducts, engorgement of the air sacks with air, rupture of the interalveolar septa, fragmentation of alveolar walls, and formation of large cysts and bullae from the remains of two or more of the original alveoli.[21] The progressive distention weakens the elastic recoil, and with increasing impairment to emptying, there are more and more trapping, and further increases in residual volume, leaving us with a patient whose chest is massive, but the major part of whose lung volume is

stale air. The anoxia results in weakness and weight loss, at least part of which springs from being too tired to eat. Even the "work of breathing" sometimes seems too great a task, and these patients often comment that they are so tired they would welcome a way to stop breathing.

This seems an appropriate place to discuss a few of the dynamic pulmonary function tests which appear so frequently in the literature, some familiarity with which seems to be necessary in order to read about emphysema. The most important are:

1. Timed vital capacity (T.V.C.). Since in the normal healthy person almost 100 per cent of the total mobile air is expired during the first three seconds of expiration, and at least 80 and perhaps 85 per cent in the first second of expiration, measuring the time of vital capacity gives a pretty good index of expiratory obstruction.[10]

2. Residual volume (R.V.) The condition of expiratory bronchial obstruction leads to trapping of air in the air sacs at the end of expiration so that the residual volume of the lung increases.[23] Ordinarily, this is discussed in terms of residual volume/total lung capacity ratio (R.V./T.L.C.) since the size of the chest varies tremendously from patient to patient, and it is the proportion of the total air remaining in the dead space that is significant. Another way of stating this is to refer to "increasing pulmonary mid-position." The resting lung is more filled with air than is the resting lung of a healthy person. The ratio of exchanged to stagnant air is diminished.[2]

3. Maximum breathing capacity (M.B.-C.). This is a measure of the total amount of air that can be moved in and out of the lungs during one minute and is usually measured in liters. Obviously in the case of bronchial expiratory obstruction, the maximum breathing capacity will be markedly limited.[3] It should also be noted that if one checks a series of vital capacities in these patients, there is more trapping following each exhalation so that the base line gradually steps up.

Any talk of these pulmonary function studies would be incomplete without mentioning that the most important methods of assessing pulmonary function are still (1) the feel of the chest under the hands, (2) the sound of the chest under the stethoscope, and (3) the sight of the chest under the fluoroscope. These measures may not make for concrete figures that can be recorded and kept for reference, but they are simple, valuable office indices of the patient.

PULMONARY EMPHYSEMA—TREATMENT

The most neglected aspect of the treatment of emphysema relates to irritant gases and the most common irritant gas is, of course, tobacco smoke. The "tobacco bronchus" with its inflammation, redness, and edema is an accepted pathological entity, and its return toward normal unconstricted size with improvement in air exchange on cessation of tobacco is familiar to all endoscopists. Most emphysema patients state that no doctor has ever flatly forbidden them to smoke cigarettes. All of them rationalized that tobacco has an expectorant action which helps them to cough up secretions, and it is imperative that the doctor explain that this expectorant action in no way compensates for the bronchial obstruction that results from the chronic irritation of tobacco. Patients with bronchospasm should stop tobaco *completely*, without exception.

The treatment of bronchopulmonary infection is the next most important available measure for the prevention and management of *cor pulmonale*,[6,24] and one must not wait for the full blown clinical picture of pulmonary infection before starting antibiotic therapy. The best approach is to culture the sputum and order sensitivities and immediately start the patient on antibiotics, both parenterally and by aerosol. It should be noted that when antibiotics are given by aerosolization, it is wisest to use those drugs which you are not likely to use parenterally or by mouth such as neomycin and aerosporin, and it is also important that the patient wash the mouth out carefully after the nebulization because of the muccous membrane faculty of producing sensitization which is much greater than in other modes of administration. It

is important to use the antibiotics in an intermittent fashion to prevent the development of completely resistant flora, and also to prevent the occurrence of staphylococcal colitis and fungus infections and the other hazards that result from long term continuous antibiotic therapy. It might also be mentioned that these patients are very good candidates for vaccination against the virus pulmonary diseases since their respiratory reserve is so borderline that the development of influenza and its associated bronchitis can often pitch them into complete decompensation.

Reference should be made to the use of bronchodilators which are most effective by nebulization either with compressed air or oxygen or the use of nebulizers. If it is necessary to use a hand nebulizer, one good hint is to have the family procure a bicycle pump and replace the rubber bulb with the pump since that represents considerably less effort on the part of the patient than the continuous squeezing of the bulb. Vapornephrin and isuprel are both very good bronchodilators for nebulization. The oral methods are less effective, but around the clock medication can be given by combining ephedrine, theophylline, and a sedative, or by using orthoxine. Suppositories last only a very short while and usually will cause proctitis if used for any length of time. In an acute situation one might administer 100 cc. of fluid per rectum with 0.5 gm. aminophylline. Isuprel is also available in the form of linguettes, and there are several powder and compressed spray bronchidilators available. In case fastness develops, it is sometime possible to restore tolerance with the administration of 1 per cent neosynephrine. There has been little recent talk of anticholinergics for nebulization, perhaps because they proved to be too drying.

Respiratory aids are of value, and the current favorite is Intermittent Positive Pressure Breathing (I.P.P.B.) which consists of a flow sensitive valve which is tripped by the beginning of the patient's inspiration, forcing air plus whatever drugs are being administered by nebulization into the lung at a pressure of 15 to 20 mm. This is not always enough to relieve the patient who is suffering from carbon dioxide narcosis, and occasionally it is necessary to put such a patient in a Drinker respirator which, of course, forces the carbon dioxide out. If the respirator is used, it is imperative that some attention be given to the tendency to buck, and adequate cycling of the machine and the patient's own breathing is important. Although the electrophrenic respirator is no longer mentioned as an aid to breathing, some work is now under way involving electrodes along the entire insertion of the diaphragm.[13] There is also an alternating positive and negative pressure device called "the exsufflator" which has the added ability to suck secretions out of the chest. Its exact role in the treatment of pulmonary emphysema seems not established. As a matter of fact, several sources think the medication administered by I.P.P.B. would be just as effective if given alone,[9,14] an opinion not shared by others,[17,27,29] including many patients. Along with the bronchodilator drugs and the antibiotics that have been mentioned previously, respiratory devices can also be used for the administration of wetting agents and detergents, the most commonly used being Alevaire which loosens secretions and permits them to be expectorated. There is another one more recently available called Turgimist which does not contain glycerine and therefore, does not gum up the machines, but since it contains iodine it could cause disastrous results in an iodine-sensitive patient. It is also possible to administer enzymes by the nebulizers. Several of these enzymes, trypsin particularly, can be administered both by needle and by nebulization and one, pancreatic dornase, seems, in the hands of some workers,[22] to produce extremely good results by nebulization. There is conflicting evidence as to whether or not the dornase is labile under conditions of nebulization.[26] There is also evidence that some of these enzymes can cause metaplasia,[7] and finally, reference should be made to the fact that their very effectiveness can cause trouble. Patients have almost drowned in their own secretions following the admin-

istration of parenteral enzymes, simply because the structural changes in the lung do not permit satisfactory expectoration of the tremendous amounts of secretions that are sometimes produced.

Steroids are specific for the changes of sarcoidosis and in asthma, but their worth in simple obstructive emphysema is also great since they reduce the inflammatory response and thereby increase the size of the bronchial lumen.

Antitussive agents are important when the cough is devastating and nonproductive because the pressure relationships in severe coughing are such as might damage the already weakened alveoli. Expectorants are of value, especially saturated solution of potassium iodide. Postural drainge if the patient is still sufficiently healthy to tolerate it, is extremely important, and the preferred method of management is to give an aerosol of a bronchodilator and an expectorant, then use postural drainage to clean out secretions and follow this with the aerosol administration of whatever antibiotics are desired.

Some mention should be made of the effect of sedatives on these patients. Drowsiness depresses the patient's respiratory center which is already at a critical level, and as a result, usually deep in the night, changes occur which we attribute to cerebral anoxia manifested mostly by restlessness, boisterousness and irritability. Giving such a patient narcotics to quiet him can only lead to more trouble because it further depresses the respiration and further decreases the cerebral oxygen supply with the result that the belligerence and noisiness increase. There are those who feel that the judicious use of chloral hydrate or bromides, paraldehyde or ether in oil will avoid this result and this may sometimes be the case. Often the best thing to do is explain to the family that any attempt to put the patient to sleep would make matters worse.

Emphysema patients interpret an excess of stagnant air as a deficit of fresh air, and feel that the way to improve their respiration is to inspire more deeply when what they actually need is to exhale more fully, and exercises which are directed towards improving the emptying of the lung rather than increasing the filling of the lung can occasionally give dramatic results. The original exercises were proposed in a manual put out by the Royal Asthmatic Society,[15] and there have been many modifications of them.[12] The most important exercise starts with the patient lying down, perferably with his head lower than his feet, perhaps with a sandbag on his abdomen, perhaps with knees flexed. In the last third of expiration the patient pushes on the lower part of his abdomen with his hands and sucks in the lower ribs and upper abdomen. Inspiration is largely passive plus an attempt to push the diaphragm down and protrude the abdominal musculature. After the exercises have been learned lying down until they become automatic, the patient sits up and does the same process, then stands up, and finally, employs the same push type of expiration when walking around. If these exercises are done with an enthusiastic physical therapist and an intelligent patient, breathing can be reeducated to the point where the patient uses his abdomen for expiration instead of for inspiration even when he is asleep, certainly evidence of complete retraining. Where all of the necessary factors are available, the results from breathing exercises can be most dramatic,[16] but the average physician does not have the time to do the training himself. If when one fluoroscopes the patient, pressure on the lower abdomen with the hand causes visible improvement in diaphragmatic excursion, some thought may be given to the use of pneumoperitoneum or an emphysema belt. It is important to realize however, that any compression of the lung is going to close off normal alveoli before it interferes with areas of obstructive emphysema. You collapse the good aveoli first. Distention per se does no harm so far as gas exchange is concerned. "It is not the size that is important, it is whether or not there is good ventilation of lung that has good blood supply."[18] So if you do something to the lung which improves the ventilation of the emphysematous area, regardless of volume, then good

may ensue, and raising the diaphragm may make a better bellows of it and thereby improve ventilation. There is little indication for surgery in the treatment of emphysema. The removal of large emphysematous blebs, unless the space is contracted either by the use of a sponge or by a collapse procedure, does not result in much improvement because the rest of the lung has to fill in the space that is left. As a result, more overdistention occurs. Sinusitis, which is nearly always present, should be vigorously treated. Salicylates have been shown in tremendous doses to stimulate the respiratory center and improve carbon dioxide removal,[25] a matter which is still of experimental interest since the dosage required usually exceeds tolerance. Where there is allergic asthma involved, the avoidance of offending pollens, the use of desensitization, aminophylline and other measures are helpful. The drying action of the antihistaminics often outweighs their beneficial effects.

I^{131} has been used to render these patients myxedematous. When measures such as this are introduced it is wise to remember that these patients have many emotional factors in their disease, since it is one which renders them practically complete cripples without representing any immediate threat to their lives. Any improvement that is not absolutely documented by laboratory methods should be viewed with suspicion.

SUMMARY AND CONCLUSION

1. Decompensated *cor pulmonale* is treated much as is other heart failure except that phlebotomy is indicated where polycythemia exists, and oxygen must be used with caution.

2. The treatment of *cor pulmonale* is most often the treatment of pulmonary emphysema. In emphysema the restriction of the pulmonary vascular bed which is essentially untreatable is much less important etiologically than is the hypoxia which is treatable.

3. The treatment of emphysema includes bronchodilators, exercises, enzymes, detergents and many other measures, but the two most important are the control of pulmonary infection and the complete avoidance of irritants, especially tobacco.

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VASCULAR HEADACHE

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Headache is not a rare symptom or ailment; its common occurrence makes it of importance to both physician and patient. Discussions of headache usually reflect the primary interest of the investigator. We feel that headache may be due to a variety of causes, even in the same patient, and therefore, a comprehensive diagnostic study of the headache patient is indicated. In addition to determining the causes of headache, we must first of all differentiate vascular from nonvascular headache.

Before discussing the types of headache and their treatment, a review of some of the more salient points in our recent statistical study is in order.

STUDY OF GENERAL POPULATION

This study [1] included 4,634 persons and represented a cross-section of the population. The statistics so obtained indicated background etiologic factors of those with headache as compared to those without. Previous studies of this type have been limited for the most part to headache patients, and not the general population, resulting possibly in biased impressions and no comparative data. Some of the more noteworthy findings were:

1. Recurrent headache is present in over 60 per cent of the general population.

2. Migraine (broadly defined) is found in 13.2 per cent of those with headache,[2] according to my criteria. When it is more rigidly defined it is found in only 5.2 per cent. Incidentally, throbbing headache is present in approximately 30 per cent.

3. We found that strictly defined histamine cephalalgia is a clinical rarity.

4. Headache in the frontal region of the head was reported by 72.7 per cent; while many of these frontal headaches are relatively mild, they may be severe and disabling.

5. Occipital or neck pain is present in 15.6 per cent of all persons reporting headaches. Muscle pain or myalgia of the scalp or neck muscles frequently accompanies or follows vascular headaches.

6. Recurrent nasal symptoms were reported by 45 per cent of those with headache, contrasted with 19 per cent of those with no headache.

7. In those without headache, 77 per cent have a history of "colds"; whereas 92 per cent of those with headache gave this history. So-called "colds" may often be manifestations of respiratory allergy.

8. Eleven per cent of the nonheadache group had a familial history of allergy; whereas, headache sufferers reported 25 per cent. These figures were tested through use of recognized statistical procedures and were shown to be significant. In view of these findings we cannot dismiss specific sensitivity as a factor in many cases of headache.

9. Another interesting finding was that headache is apparently more common among females, 71 per cent and in males 50.7 per cent; the younger adult, 21 to 30, 74.6 per cent and over 60, 28.6 per cent; the unmarried, 70.8 per cent and in the married, 61.1 per cent; the student, 80.2 per cent, executive, 77.3 per cent, and professional groups, 70.8 per cent.

STAGES

We are limiting our discussion to vascular headache, in which there are three well recognized stages:

1. **Vasoconstriction.** In this stage the patient may experience aurae or prodromal signs including visual changes, scintillating scotomata, mood changes, etc. (Figure 1).

2. **Vasodilation.** Pain is due to an increased amplitude of pulsation which pro-

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Figure 1

duces afferent impulses on nerve tendrils in the vessel walls. Visual changes may persist. Nausea and even vomiting may occur. (Figure 2).

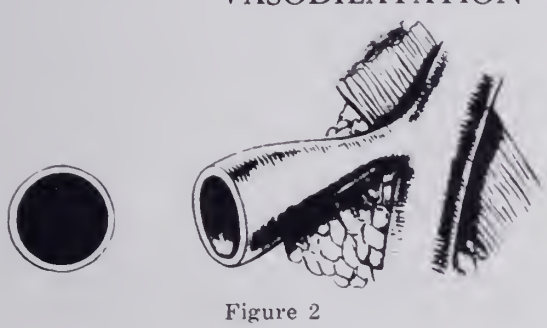


Figure 2

3. **Edema.** If the dilation of the artery continues, edema of the wall may occur. During this stage the response to a specific vasoconstrictor may not be satisfactory. (Figure 3).

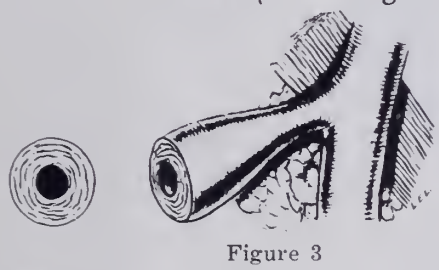


Figure 3

Many patients experience a weight gain of several pounds prior to their headache. This is associated with the retention of water, sodium, potassium, and corticosteroids. There is an outpouring of these substances during diuresis which usually occurs during the attack.

Cranial vascular disturbances may be atypical. As an example, a "migraine variant" means that the pain may appear in unusual locations, such as the face, shoulders, or chest. On the other hand, symptoms of migraine or in fact, of vascular headache in general, may be present without head pain. This has been designated as a "migraine equivalent."

CAUSES

We may divide the main causes of vascular headache into: (a) precipitating or trigger, (b) predisposing, (c) a combination of trigger and predisposing. Trigger causes may be nonspecific (temperature changes, hunger, fatigue, etc.) allergic reactions, excessive smoking, emotional episodes, toxic states, vasodilator substances such as histamine, alcohol, and nitrites, biochemical changes and nerve irritation. Predisposing causes are mechanical lesions of cervical spine, unmarried state, occupation, hypertension, nasal abnormality, sex, heredity, age, advanced education, psychogenic states and nasal allergy. Both trigger and predisposing causes are endocrine, nasal changes, eye strain, biochemical changes, mental conditioning, medical pathology and stress.

There are undoubtedly several other factors. Endogenous, chemical or hormonal substances may be involved. Water and lower molecular weight substances may leak into the tissues. In the tissue fluids in headache there may be an agent capable of lowering pain thresholds. The headache patient seems to have labile vasomotor changes. The involved vessels may be extracranial or intracranial. In the latter type the pain is usually generalized. Edema of the brain tissue itself has been shown to occur at times.

Neuropsychiatrists state that there is little evidence of specific precipitating psychodynamic factors. However, feelings of repressed hostility, tension and the perfectionist type of personality, etc., may be identified. The poor adaptation to stress in some individuals may be due to heredity. Imbalance of the autonomic nervous system is a feature. Mental states may be unrecognized and also the factor of mental conditioning is frequently overlooked. By mental conditioning we mean that an in-

dividual has come to expect a headache as a sequel to certain events.

As a matter of fact, I feel that many headaches may be explained on a semi-reflex basis. Frontal headache may be an example of this type.[3] (Figure 4)

We feel that frontal headache is of the vascular type, because these patients frequently manifest other criteria of vascular pain such as nausea, throbbing, visual changes, clinical response to the ergotamines, etc. It has been shown that pain arising from the nasal or sinus mucosa may be referred to various parts of the head and not particularly to the frontal area. It is believed that pain is seen in acute sinus infection, but not in chronic sinus infection. The older concept of the "vacuum" type of headache due to sinus plugging is not now universally accepted.

We believe that the mechanism of frontal headache may be due to dilation of the ophthalmic artery itself or one or more of its terminal branches, which may be initiated by pressure on the anterior and/or posterior ethmoid vessels. Nasal symptoms of a greater or lesser degree are often found in this syndrome; "cluster headaches" may be flare-ups of frontal headache. (Figure 5).

It is better for us to recognize that the patient has either vascular headache or nonvascular headache. I believe we have used the word migraine far too often, since symptoms thought to be typical of "classical migraine" may be found in other types of headache. As indicated, the headache problem is complex; it may be based on an ocular disturbance, nasal abnormality, stress, medical disorder such as hypertension, changes in cervical vertebrae or discs, nerve irritation (such as is seen at times in the occipital) which may be associated with vascular head pain. We should not classify headaches by naming the cause. I dislike the term "allergic headache" as much as I do the term "tension headache."

To illustrate the complexity of the headache problem, the taking of alcoholic

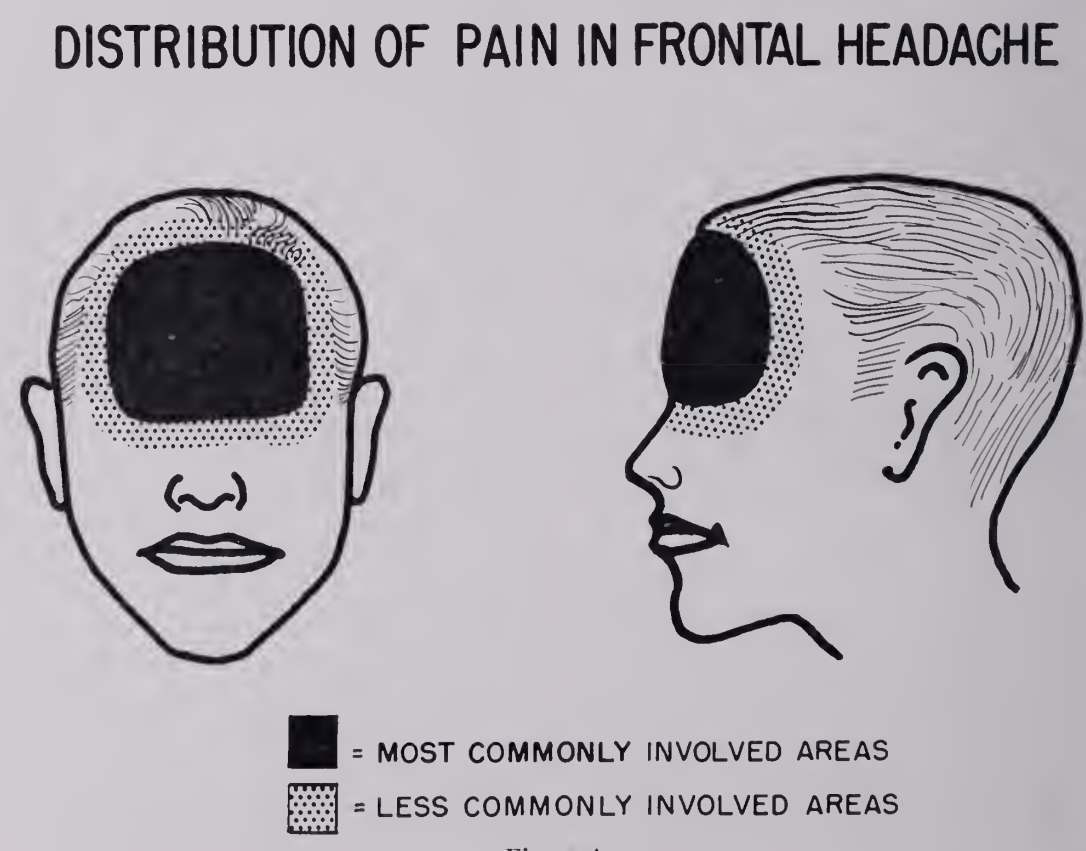


Figure 4

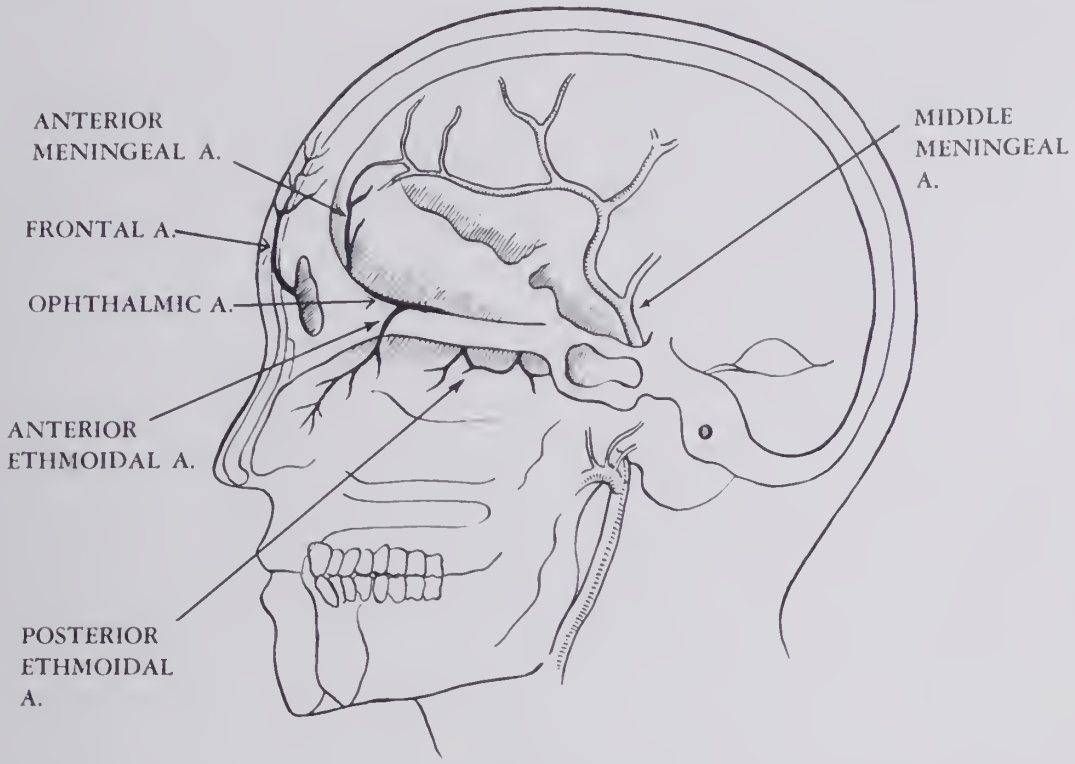


Figure 5

drinks may produce headache in any one or more of the following ways.[4]

1. The immediate vasodilating effect of alcohol may quickly precipitate an attack.
2. The hangover type headache also may be associated with dilation or increased amplitude of pulsation.
3. Headache may be due to sensitization to the beverage itself. Many individuals cannot drink a certain beverage, such as beer, without developing headache.
4. Emotional factors may result from overindulgence.
5. Excessive smoking (associated with drinking) may produce nasal irritation.

PREVENTION AND TREATMENT

Obviously the prevention of headache is an important topic. The patient must be evaluated from an overall standpoint in which all causative mechanisms are studied and properly managed. Nothing should be left undone in our study of the patient with severe recurring headache. We should attempt to understand the patient's emotional and psychological background.

Prophylactically certain medications are helpful. Ataraxics such as meprobamate may have a tranquilizing effect but should not be used unless specifically indicated. A combination such as Bellergal which "dampens" the central and autonomic nervous systems. An antihistamine may be very helpful especially in frontal headache, or when nasal changes are involved.

Nose drops may help certain patients, especially in the lateral head low position, but addiction must be guarded against. The topical use of a steroid such as prednisolone in the nose by nasal spray may help nasal symptoms and therefore headaches.

An injection of histamine base will produce a headache in a normal person promptly; this headache is usually preceded by flushing of the face. A histamine cephalalgia patient may experience an attack of histamine cephalalgia in addition to the above headache twenty minutes or longer after the injection of histamine.

Histamine is liberated by the body cells as part of the allergic reaction. It has been stated that its use may induce a refractory state in which the individual does

not respond with clinical symptoms to the endogenous production of this substance. Good results have been reported by certain workers; however, I feel that more controlled statistical studies are indicated.

It should be emphasized that the treatment of all vascular headaches is similar with only individual variations.[5] Thus if one is able satisfactorily to treat the patient symptomatically, we are then able to better study the causes and eliminate or reduce the frequency of the episodes.

Pure symptomatic treatment of headache justifies discussion. The treatment of vascular headache differs from nonvascular head pain in that the prime objective is to constrict the dilated cranial blood vessels; whereas, with nonvascular headache one attempts to raise the pain threshold. Since the pain of vascular headache is due to dilation of certain blood vessels we should employ a substance or substances which will reverse this situation. General vasoconstrictors such as adrenalin (Epinephrine) are used with varying degrees of success. Octin (Methylisoctenylamine) is useful in selected cases, however, it may have a hypertensive effect. Ergotamine tartrate and its derivatives, and combinations such as Gynergen (ergotamine tartrate), DHE-45 (Dihydroergotamine Methanesulfonate), Cafergot (ergotamine tartrate + caffeine), Cafergot PB (ergotamine tartrate + caffeine + 1-belladonna alkaloids + pentobarbital sodium), and Wigraine (ergotamine tartrate + caffeine + 1-belladonna alkaloids + acetophenetidin), have been especially useful since they specifically constrict cranial blood vessels. Ergotamine tartrate parenterally is usually effective in a dose of ½ cc. (0.25 mg.); not more than 2 cc. should be used in any one week. In some patients DHE-45 is better tolerated; the dose is 1 cc. (1 mg.), however, some require a larger dose but not more than 3 cc. should be administered in any one week.

A new oral product has been of value in symptomatic treatment, Wigraine, one to two tablets to be repeated every half hour if needed up to a total of six—maximum of twelve tablets per week. Incidentally this tablet is uncoated and for this reason there is quicker absorption—with all ergotamines it is advantageous to secure the pharmacologic effect as quickly as possible. This means the dose is more effective when given promptly. The patient who needs ergotamine needs it as early as possible in the attack, yet I have seen prescriptions for one Wigraine tablet three times a day. This medication is not intended for prophylactic treatment. When parenteral medication is not possible and when patients are nauseated or vomiting, rectal medication is indicated. One or two Wigraine suppositories at the onset are usually effective—if needed, repeat with one or two suppositories in thirty minutes using not more than six for one attack or twelve in any one week.

In various combinations, it has been found that certain drugs act synergistically with ergotamine. Caffeine is a mild vasoconstrictor, mild diuretic and is thought by some to facilitate absorption of ergotamine. In fact, many patients actually take coffee for relief of their headaches. Levorotatory alkaloids of belladonna are especially useful in those patients with nausea and vomiting. A nonnarcotic analgesic such as acetophenetidin will help to relieve muscle pain which frequently accompanies or follows vascular headache. Narcotics, including codeine and demerol, should ordinarily not be used in recurrent vascular headache.

SUMMARY

Types of vascular headache and their treatment have been described. These headaches may be hard to diagnose since various types of vascular headaches may occur at different times in the same patient or even simultaneously.

Headache may be due to allergy or sensitization. The patient may be allergic to a number of substances including food and inhalant substances (this is especially true for frontal type headache). Many of these patients are helped by elimination of certain foods from their diet, or by avoiding inhalant substances to which

they are allergic, or by hyposensitization.

The headache problem has many facets. One cannot emphasize one aspect of the problem to the neglect of other possible causative mechanisms. We must recognize the relative importance of various factors. Nothing should be left undone in our study of the patient with severe recurring headache. We should attempt to thoroughly understand the patient's emotional, psychological and medical background.

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PHYSICIANS' FEES AND THE RELATIVE VALUE SCALE

The problem of physicians' fees goes back into antiquity. The public, including the physician, has an obvious interest in it. Down through the ages laws have usually avoided regulation and restriction of fees. Occasionally, efforts at regulation have been made, but their effects have been neutralized by custom and by the practical necessities required for uniform laws. On the contrary, even Diocletian during an attempt to regulate and fix prices for the entire economy of the Roman State expressly exempted physicians from such regulations. It has been an accepted custom among physicians in the generations immediately preceding ours that the physician was expected to charge in accordance with the quality of the service, the character of the service, and the ability of the patient to pay. This formula, influenced by local conditions, has been used tacitly as the guide in the physician-patient relationship generally. The individual who called the physician usually understood what was expected.

The acceptance of this custom concerning fees is covered in part in the Principles of Medical Ethics, adopted on June 6, 1957, by the American Medical Association, in which it is stated in Section 1: "The principal objective of the medical profession is to render service to humanity with full respect for the dignity of man." And in Section 7: "His fee should be commensurate with the services rendered and the patient's ability to pay."

Of recent years, however, a third party to the physician-patient relationship has appeared in the form of contracts with commercial insurance companies, prepayment medical care plans, government sponsored payment systems, and similar agencies, as a result of which the individual patient had possibly no, or only limited, responsibility for the physician's fee. In its operation the payment agency could not set the physician's fee, so it devised schedules limiting its liability in various procedures of medical practice. These fee schedules have been resisted by many physicians in this country and accepted by a large number, probably the majority.

Those who resist fee schedules feel that the practice of their profession should remain independent of all outside influence, and that they have a legal and moral right to charge what and when they please. Those who accept the schedule of fees are following the trend of the times, which they may or may not be able to stop.

The commercial, Blue Shield, Blue Cross, and government schedules are arranged in accordance with an average of prevail-

ing usage. The public looks at these schedules and comes to feel that the respective medical procedures have a uniform value.

At this point, physicians have it pointed out to them that they, the physicians, expect a uniform charge from those with whom they deal outside of the field of medicine and, on the other hand, that their professional responsibility is admittedly the same regardless of ability to pay. The fact is also presented that more than one half of the nation has some form of insurance for payment of physicians' services on a fixed basis, and further, that each physician (or surgeon) is practically restricted to his particular schedule of fees for services. This restriction has been brought about partly by his own habitual usage, and partly by local conditions. In response to these contentions the physician's answer is that conditions of practice vary, and the fees must of necessity meet the conditions of practice. In addition, various local and state societies have felt that a guide to establish the relative value of the several medical and surgical procedures, in relation to each other, would be helpful. This guide could be used by fixing a dollar value to the relative values by the physicians themselves, the medical societies, and by outside payment agencies.

To this end a relative value scale or schedule has been adopted by several state medical associations. This schedule establishes a relative value of one procedure in reference to another without a dollar value. For instance, the most recent is that of Kansas (modified from that of California), which gives a unit value of one for a routine office or hospital visit, and a value of thirty-five for an appendectomy. The relative value schedule of the California Medical Association was adopted in 1956, and is a comprehensive and commendable effort to provide all interested parties with a set of guiding principles that can be used to govern the development of fee schedules. Such a guide is applicable to any local condition and to anyone's practice, but it sets no fees and is not a fee schedule.

If applied to an individual physician's practice, it would have the effect of restricting his charges to his customary habit, except under special circumstances. Applied to a schedule of insurance benefits, it would act as a yardstick for the patient and the company.

In the decisions of grievance committees such a schedule would provide a basis for judgment with reference to the custom prevailing in the community, and also, in the physician's own practice.

The relative value scale would interfere with the freedom of action, and possibly place a ceiling in particular instances on the fees of a supposed three per cent of the practicing physicians. It would, on the other hand, provide a useful guide and have a stabilizing effect in the determination of fees for the vast majority.

These relative value schedules are being discussed generally by all who are interested in organized medicine. It is expected that such schedules will be presented for consideration in many states, and probably on a national scale.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

AMERICAN BOARD OF ABDOMINAL SURGERY

Many Louisiana physicians have recently received invitations to become associated with an organization claiming to be the "American Board of Abdominal Surgery," and have requested information regarding this organization.

The following statement was received from the Council on Medical Education and Hospitals of the American Medical Association.

"The Council on Medical Education and Hospitals has received many inquiries from individuals who have been invited to submit applications for the Founders Group of the American Board of Abdominal Surgery. The inquirers have been concerned as to whether the American Board of Abdominal Surgery is approved by the Council on Medical Education and Hospitals.

"Several years ago the Council was delegated the responsibility to act for the American Medical Assoication to grant approval to specialty boards which met appropriate requirements and standards. The Council on Medical Education and Hospitals continues to fulfill this function, assisted by the Advisory Board for Medical Specialties, which is composed of representatives from each of the approved specialty boards.

"The American Board of Abdominal Surgery has not sought recognition from either the Council on Medical Education and Hospitals or the Advisory Board for Medical Specialties. It is, therefore, not approved by either of these groups."

MEDICARE

Dr. Isidore Gajan, Chairman of the Committee on Federal Medical Services and myself as Secretary-Treasurer were instructed by the Executive Committee to go to Washington to renegotiate a new contract for "Medicare" for the State Society, with the Office for Dependents' Medical Care, Surgeon General, Department of the Army, whose responsibility it is to administer the program providing care authorized by Public Law 569.

Your State Society as contractor, and the Continental Service Life and Health Insurance Company of Baton Rouge as fiscal agent have been operating under the original contract since the beginning of the Medicare Program in 1956.

We labored for two days including long hour sessions with representatives of the Surgeon General's Office and feel that a good contract was obtained for our Society. We feel that, contrary to the apparent belief of a few members of the Executive Committee, Dr. Gajan and myself had your best interest at heart.

The new contract was signed by me as Secretary-Treasurer as per authorization of the Executive Committee in good faith.

As in prior contracts maximum allowances were obtained, no other State exceeding allowances negotiated for our State Society. Again we were successful in our agreement with the federal government, to preserve or maintain your status as a private physician in dealing with your patients. This we believe, is a principle worth working for.

You will again be expected to render your own bill for the usual fees charged for such cases with **incomes** equal to those received by the **respective military personnel.** In only a small number of cases, will your bill be questioned if you observe the **intent** of and abide by the contract. Of course, those few cases in which differences of opinion may occur, can be appealed first to your District Medicare Committee and then to your State Medicare Committee and finally to Washington.

In our renegotiation of the contract for this program in Washington, we were treated with every courtesy and consideration by its military personnel, and our thanks and appreciation are especially extended to Col. Earl C. Lowry who cooperated fairly at all times during our deliberations.

You will no doubt know, and can see from the following that Medicare services have been decreased by Congress due to the limitations in the amount of money appropriated for this program. Whether or not a sufficient appropriation is allocated to this program in the future is entirely in the hands of Congress and we will have to wait for the 86th (Jan. 7/59) Congress to act. Should enough pressure be exerted by the military personnel who are the recipients of this program and all other persons as groups, including the State Medical Societies and Associations, we are of the opinion that this program will be restored to its original status, thereby, rendering to these men and their families efficient medical services with free choice of physician and hospital facilities.

The "Medicare" program was never intended to favor the Government or doctors. Public Law 569 was passed by Congress to create and maintain high morale throughout the uniformed services by providing an improved and uniform program of medical care for members of the uniformed services and their dependents.

The "Medicare" program is only one of the many

programs which your officers are attempting to carry out for the advancement of organized medicine for you as members and for the welfare of the good citizens of our State, and every member of our Society should be vitally interested and lend his support to these efforts. Without your support, it is hard to function properly and successfully. Won't you give us that support?

Why don't you take your officers into your confidence and request one or some of your officers or councilors to visit your parish society to acquaint you with what is being done for you at headquarters. We need your assistance and suggestions and please be assured that we will be very glad, indeed, to answer any questions you might feel inclined to ask regarding the activities and workings of your Society. After all, you are technically responsible for these programs. Why not play a more participating part in your own programs? We welcome your cooperation.

CHANGES TO THE DEPENDENTS' MEDICAL CARE PROGRAM

1. To assure optimum utilization of uniformed services medical facilities and to effect economy while providing care authorized by Public Law 569, the following changes in the current operation of the Dependents' Medical Care Program are effective on and after 1 October 1958.

PART I: Spouses and Children Residing Apart from Sponsors

2. Spouses and children residing apart from sponsor will continue to be allowed selection of either uniformed services medical facilities or civilian medical sources for care authorized under the Program.

3. When DA Form 1863 shows "Residing Apart from Sponsor—**Yes**," in Item 4 of the claim form, the designation of this fact on the claim form by the person signing Item 14 will be sufficient, and authorized care rendered will be payable provided that the person or entity providing the care has no actual knowledge to the contrary.

PART II: Restrictions on Spouses and Children Residing with Sponsors

4. Spouses and children residing with sponsor will be required to utilize uniformed services medical facilities if available and adequate as determined by the commander of the medical facility. When uniformed services medical facilities are not available, a PERMIT will be furnished such dependents by the appropriate commander. This PERMIT will entitle them to receive authorized care from civilian sources at Government expense **if** such care is authorized under Public Law 569 and the Joint Directive, as amended. A summary of changes in the scope of authorized care is set forth below.

5. Effective 1 October 1958, it will be necessary for physicians and hospitals rendering care to eligible dependents to take the following actions in order to insure payment of their claims for authorized care rendered:

a. When DA Form 1863 shows "Residing Apart from Sponsor—**No**," to allow payment for authorized care, a PERMIT is required as noted in paragraph 4 above **(a copy of which must be attached to the original copy of the attending physician's and the hospital's claim form), except** in the followng circumstances:

(1) When a spouse or child residing with sponsor is hospitalized for care authorized under the program in a bona fide acute emergency, e.g., serious injury following an accident or illness of sudden onset requiring immediate treatment at the nearest available medical facility to preserve life, or to prevent undue suffering, **a statement by the attending physician on the DA Form 1863, or attachment thereto, in lieu of a PERMIT, is required,** stating, "This case was a bona fide acute emergency."

(2) Where a spouse or child is residing with sponsor, but is away from the area of the sponsor's household on a trip, care authorized under the Program may be provided from civilian sources without a PERMIT. The statement "On Trip" in Item 3 or 4 of the DA Form 1863, by the person signing Item 14, will suffice, provided the person or entity providing the care has no actual knowledge to the contrary.

(3) A maternity case (residing with sponsor) under the care of a civilian physician on or before 1 October 1958 may be continued by that physician provided the patient has reached the second trimester of pregnancy on or before that date. In these cases a statement by the attending physician on the DA Form 1863 (or attachment thereto) will be submitted by the physician **and** the hospital to the effect that the patient was under his care on or before 1 October 1958, and that her pregnancy had reached the second trimester on or before that date. This statement will suffice to authorize this care for payment without a PERMIT **and will apply only to maternity cases where the wife resides with her sponsor.** No restriction as to freedom of choice has been placed on those eligible dependents who reside apart from sponsor.

(4) Spouses and children **residing with sponsor** admitted to a hospital for authorized care prior to 2400 hours midnight, 30 September 1958, and whose hospital care resulting from this admission extends beyond 30 September 1958 will not be required to provide a PERMIT for that admission to the hospital. Nevertheless, the date of admission shown by the hospital on all claim forms submitted involving care of an eligible dependent must indicate that the admission occurred prior to 1 October 1958.

(5) Spouses and children **residing with a sponsor** who are receiving authorized care from a physician and who are admitted to a civilian hos-

pital prior to 2400 hours midnight, 30 September 1958, will be authorized care by a civilian physician without a PERMIT, provided the physician shows the date of admission to a civilian hospital on his claim form, and this date is prior to 1 October 1958.

6. PERMITS, where required by this letter, must be attached to the original copies of DA Form 1863 on claims submitted by attending physicians **and** hospitals. Claims submitted by other than attending physicians or hospitals, e.g., Assistant Surgeon, Radiologist, Pathologist, Anesthesiologist, Dentist (when not in capacity of the attending physician), Consultant, Psychiatrist, Private Duty Nurse, Anesthetist, and Physical Therapist, will be authorized for payment without a PERMIT. However, claim form (DA Form 1863) must contain a statement by the person executing the certification in Item 14 that a PERMIT was furnished to the attending physician (identified by name) and/or to the hospital (identified by name).

PART III: Care No Longer Payable under the Dependents' Medical Care Program

7. In order to comply with budgetary limitations placed on the Dependents' Medical Care Program by the Congress for the Fiscal Year 1959, rigid restrictions are immediately required. Therefore, it is necessary to curtail certain care and services currently authorized by the Joint Directive under discretionary authority vested in the Secretary of Defense by Public Law 569. **Effective 1 October 1958,** and in order to implement the above, the Joint Directive has been amended so that **the following care and services, if commenced on or after that date, will not be payable by the Government** under the Dependents' Medical Care Program:

a. Treatment of fractures, dislocations, lacerations and other wounds on an outpatient basis, previously authorized by Section 503 d (5) of the Joint Directive.

b. The Termination Visit. This refers to payment of a referring physician who terminates his care prior to, or upon hospitalization of, the patient. This was previously authorized by Section 503 d (1) (e) (V) of the Joint Directive, and was formerly payable under Code 0042 in recently negotiated Medicare Manual and Schedule of Allowances, and Code 0011 in the original Schedule of Allowances for Physicians' Fees.

c. Outpatient pre- and post-surgical tests and procedures. These were formerly authorized by Section 503 d (1) (e) (i) and (ii) of the Joint Directive in an amount of $75.00 before hospitalization, and $50.00 after hospitalization.

d. Neonatal Visits. Formerly authorized on an outpatient basis by 503 d (2) (c) of the Joint Directive not to exceed two visits during the first 60 days, except that in the case of home or office deliveries necessary infant care may be provided on an outpatient basis during a period not to exceed 10 days following the date of delivery. Payment for this service would be in accordance with Code 0022 in the current Medicare Manual and Schedule of Allowances. The in-hospital part of care of the newborn is still allowable as part of complete maternity care, Section 503 d (2) (e) of the Joint Directive, and is payable under Code 0022 in the current Medicare Manual and Schedule of Allowances, and Codes 0002 and/or 0010 in the original Schedule of Allowances for Physicians' Fees.

e. The treatment of acute emotional disorders. This was formerly authorized, when an acute emergency existed, by Section 502 g to the Joint Directive and ODMC Letter No. 2-58, dated 2 January 1958. (Reproduced in the Medicare Manual and Schedule of Allowances). Except, however, care of an acute emotional disorder may be furnished to a spouse or child, if required, during the period of hospitalization of that spouse or child for a condition that **does** qualify as authorized care. (See Section 505 b of the Joint Directive, as revised)

f. Elective surgery.

8. Elaboration on certain areas of care.

a. SURGICAL

(1) The description of "Elective Surgery" as now contained in Section 5-504 c of the Joint Directive is set forth below. Elective surgery as set forth below **does not** constitute authorized care:

"Medical or surgical care that is desired or requested by the patient which in the opinion of the cognizant medical authority can be planned, subsequently scheduled, and effectively treated at a later date without detriment to the patient, e.g., diagnostic surveys, cosmetic surgery, reconstructive surgery, tonsillectomies, uncomplicated hernias, and interval appendectomies."

(2 The following paragraphs delineate the surgery authorized and the surgery not authorized under the Medicare Program on and after 1 October 1958.

(a) Surgical Procedures Authorized for Payment.

1. Surgical Emergencies Requiring Hospitalition. Bona fide surgical emergencies which cannot be handled on an outpatient basis, will continue to be honored for payment under the Program. Such patients will necessarily be acutely ill and in need of **immediate** hospitalization and treatment. Examples include perforated duodenal ulcer, hemorrhage with shock, bowel obstruction, and similar recognized emergencies.

2. Acute Surgical Conditions. It is well recognized that many acute surgical conditions develop which, while requiring prompt treatment in a hospital, are not considered emergencies under the Program. Under such circumstances the patient is acutely ill and must receive treatment

without delay as time will not permit the patient to anticipate or plan for the care required. The procedure required for the treatment will of necessity be carried out at the earliest practicable time compatible with sound surgical judgment and the proper preparation of the patient for surgery. The spirit of this requirement is that the ill patient is in clinical need of hospitalization without delay with a view to surgical correction of the basic condition. Examples are acute appendicitis, empyema of the gall bladder, twisted ovarian cyst, strangulated hernia, pelvic abscess, and renal or ureteral calculi with colic. When the charge physician so indicates that an acute requirement existed, payment will be authorized. Suspected or proven malignancy, requiring hospitalization, will be payable only if the case qualifies under this or the preceding subparagraph.

3. Injuries Requiring Hospitalization. Injuries of such clinical severity as to require hospitalization will continue to be payable. Hospitalization is authorized only for the treatment of the acute phase. Re-admission for treatment of chronic stages or sequelae of injury would not be payable unless an acute medical or an acute surgical requirement is shown, such as, osteomyelitis, with acute exacerbation.

(b) Surgical Procedures **not authorized** for payment under the Medicare Program.

Elective surgery described in paragraph 8 a (1) above which, from a practical viewpoint, permits the patient and the physician to plan for the surgery required, is not authorized for payment under the Program. Hence, a great many surgical procedures payable in the past are not now authorized unless, due to unusual circumstances, they would qualify under paragraph 8 a (2) (a) 1, above. Examples are Tonsillectomy, Dilation and Curettage, Hysterectomy (Routine), Ligation of Fallopian Tube, Heart Surgery, Submucus Resection, Rhinoplasty, and Reconstructive Orthopedic and Plastic Procedures.

b. MEDICAL

The provisions of the Joint Directive pertaining to the treatment of acute medical conditions remain unchanged. (See Section 502 a of the Joint Directive) However, in accordance with ODMC Letter No. 25-27, dated 24 December 1957, the admission of patients not acutely ill for diagnostic surveys will not be payable.

c. DENTAL

The provisions of the Joint Directive pertaining to dental care remain unchanged. However, adjunctive dental care is now payable only when it is an integral and necessary part of surgical or medical care now authorized in paragraphs 8 a (2) (a) and 8 b, above. It must be clearly shown that the dental care furnished was required for the proper treatment of the basic medical or surgical condition for which the patient was hospitalized.

9. Administration of Treatment of Patients who Commenced Receiving Care before 1 October 1958 where that Care Has Been Deleted from the Program, Effective that Date.

a. **Hospitalized Patients.** A patient will be deemed to have commenced receiving such care if admitted to the hospital prior to 2400 hours midnight on 30 September 1958. Care is authorized during that period of hospitalization if the claim form shows an admission date earlier than 1 October 1958. The care referred to here includes the termination visit and outpatient pre- and post-surgical tests and procedures associated with this admission.

b. **The Two Neonatal Visits** previously authorized will be payable if the birth occurs prior to 2400 hours midnight 30 December 1958, and if the physician's claim form contains a statement to that effect.

c. **Outpatient Injuries** will be deemed to have commenced prior to 2400 hours midnight 30 September 1958 and, therefore, payable if the patient contacted a source of care prior to that time, and if the source of care so states on the claim form.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The twenty-second annual meeting of The New Orleans Graduate Medical Assembly will be held March 2, 3, 4 and 5, 1959, headquarters at the Roosevelt Hotel.

Eighteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners. The program will include fifty-four informative discussions on many topics of current medical interest, in addition to clinicopathologic conferences, symposia, medical motion pictures, round-table luncheons and technical exhibits.

Following the meeting in New Orleans, arrangements have been made for a clinical tour to Mexico City, Cuernavaca, Taxco, Acapulco and San Jose Purua, leaving from New Orleans on Friday, March 6 and returning on Saturday, March 21.

Details of the New Orleans meeting and the clinical tour are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

Listed below are the Chairmen and Vice-chairmen of the Program Committees for this year:

ANESTHESIOLOGY
John Adriani, M.D., Chairman
Frank L. Faust, M.D., Vice-chairman

CARDIOLOGY AND INTERNAL MEDICINE
William W. Frye, M.D., Chairman
Philip M. Tiller, Jr., M.D., Vice-chairman

DERMATOLOGY
V. Medd Henington, M.D., Chairman
David F. Bradley, M.D., Vice-chairman

GASTROENTEROLOGY
Gordon McHardy, M.D., Chairman
William D. Davis, Jr., M.D., Vice-chairman

GENERAL PRACTICE
Nicholas J. Chetta, M.D., Chairman
Charles R. Robinson, M.D., Vice-chairman

GYNECOLOGY
Woodard D. Beacham, M.D., Chairman
Milton L. McCall, M.D., Vice-chairman

NEUROPSYCHIATRY
Theodore L. L. Soniat, M.D., Chairman
Walter J. Otis, M.D., Vice-chairman

OBSTETRICS
Maxwell E. Lapham, M.D., Chairman
Abe Mickal, M.D., Vice-chairman

OPHTHALMOLOGY
George M. Haik, M.D., Chairman
N. Leon Hart, M.D., Vice-chairman

ORTHOPEDIC SURGERY
Irvin Cahen, M.D., Chairman
James L. LeNoir, M.D., Vice-chairman

OTOLARYNGOLOGY
Francis E. LeJeune, M.D., Chairman
George J. Taquino, Jr., M.D., Vice-chairman

PATHOLOGY
Andrew V. Friedrichs, M.D., Chairman
Ralph M. Hartwell, M.D., Vice-chairman

PEDIATRICS
John Henry Dent, M.D., Chairman
W. C. Rivenbark, M.D., Vice-chairman

RADIOLOGY
Henry M. Duhe, M.D., Chairman
J. Theo Brierre, M.D., Vice-chairman

SURGERY
L. Sidney Charbonnet, Jr., M.D., Chairman
Walter F. Becker, M.D., Vice-chairman

UROLOGY
Max M. Green, M.D., Chairman
Paul L. Getzoff, M.D., Vice-chairman

AMERICAN COLLEGE OF CHEST PHYSICIANS

Dr. Lawrence H. Strug, chairman of the committee on local arrangements announces the 15th annual meeting of the Southern Chapter of the American College of Chest Physicians which will meet jointly with the Southern Medical Association on November 2 and 3, 1958 at the Jung

Hotel, New Orleans, Louisiana. This meeting is open to all physicians. No registration fee is required. The scientific sessions begin on Sunday, November 2 at 9:30 A.M. and continue through 5 P.M. The papers for that day are primarily on pulmonary diseases, such as "Roentgen Aspects of Active Histoplamosis; by Earl E. Little, Jr., M.D. of Little Rock, Arkansas; "Some Problems of Staphylococcal Pneumonia" by Charles A. Le Maistre, M.D. of Atlanta, Georgia; "Substitution Operation for Esophageal Stricture" by Osler A. Abbott, M.D. of Atlanta, Georgia: "Surgical Treatment of Bronchogenic Carcinoma" by G. V. Brindley, Jr., M.D. of Temple, Texas.

The meeting continues Monday, November 3 at 9:00 A.M. and is on Cardio-vascular subjects with a symposium on "What Do the Newer Research Tools in Cardio-Vascular Disease Hold for Future Application," Moderator, George E. Burch, M.D., New Orleans, Louisiana.

The Fifth Annual Paul Turner Memorial Lecture sponsored by the Southern Chapter will be given by Alton Ochsner, M.D. on Bronchogenic Carcinoma.

HISTORY U.S. ARMY MEDICAL DEPARTMENT

Two volumes in the series on the history of the United States Army Medical Department in World War II entitled **Cold Injury, Ground Type** and **Emergency War Surgery** were published in September. Both were prepared editorially as part of a contract between the Department of the Army, Office of the Surgeon General, and the Tulane University School of Medicine, and are available from the Government Printing Office. The Cold Injury volume is a history of its occurrence during World War II, summarizes its pathologic physiology, its epidemiology, its military cost, its management, including the rehabilitation of casualties from this cause, and sets forth principles for a sound program for its prevention and control.

Emergency War Surgery is the outgrowth of an earlier manual published at Supreme Headquarters, SHAPE, in 1957, which was developed by a committee of three surgical consultants representing the military medical services of France, the United Kingdom, and the United States. It will be used for instructional purposes in the medical service schools and in the MEND program. It presents the principles and details of emergency management of wounds and injuries, including chemical injuries, describing the methods of handling both battle trauma and accidental trauma in civilian life.

COURSE IN ANESTHESIOLOGY

The University of Texas Postgraduate School of Medicine announces the Fourth Annual Course in Anesthesiology to be held February 18, 19 and 20, 1959, in Houston, Texas.

The Course is designed to review theory and practice of commonly used anesthetic techniques and will include discussions of some of the newer drugs. Lecturers include:

John Adriani, M. D., Charles R. Allen, M. D., Joseph F. Artusio, Jr., M. D., Harold B. Crasilneck, Ph. D., D. C. Grosskreutz, M. D., Emilia A. Hoeflich, M. D., M. T. Jenkins, M. D., Walter H. Mannheimer, M. D., Lawrence F. Schuhmacker, Jr., M. D., Eugene L. Slataper, M. D., Herman S. Wigodsky, M. D., Ph. D.

Please address all inquiries to:

The University of Texas
Postgraduate School of Medicine
410 Jesse Jones Library Building
Houston 25, Texas

COMING MEDICAL MEETING

The International Medical Assembly of Southwest Texas will hold its annual meeting January 26, 27, 28, 1959 in San Antonio, Texas at the Gunter Hotel. Dr. L. Bonham Jones, President; Mr. S. E. Cockrell, Jr., Executive Secretary, 202 W. French Pl., San Antonio, Texas.

COURSE IN PRACTICAL ELECTROCARDIOGRAPHY

The University of Texas, Postgraduate School of Medicine announces a course in Practical Electrocardiography to be held in Houston, Texas, December 15 through 19, 1958. This course will emphasize Spacial Vector - Electrocardiography. Dr. Robert F. Grant of the National Heart Institute, one of the foremost authorities in this field, will be the J. J. and Una Truitt Lecturer for this course. In addition to the evening formal lectures there will be daytime electrocardiographic interpretation practice sessions.

SOCIAL SECURITY FOOTNOTES

SOCIAL SECURITY SAYS: "The following table shows the present tax rates and the scheduled increases: (on $4200 wage base)

Calendar year	Employee	Employer	Self-Employed
1956	2%	2%	3%
1957-59	2¼ %	2¼ %	3⅜ %
1960-64	2¾ %	2¾ %	4⅛ %
1965-69	3¼ %	3¼ %	4⅞ %
1970-74	3¾ %	3¾ %	5⅝ %
1975 and after	4¼ %	4¼ %	6⅜ %

In Other Words: A recent announcement stated that the Social Security system is in trouble. Benefit funds are melting as applications pour in at a rate in excess of Federal estimates. HEW Secretary M. H. Folsom was quick to say that expenditures may exceed income in 1959, but higher taxes in 1960 will cover the deficits. Check the chart above for proof that our children will be paying the bills for our benefits.

1959 PRIZE ESSAY CONTEST

The American College of Chest Physicians is offering three cash awards to winners of the 1959 Prize Essay Contest. First prize, $500.00—second prize, $300.00—third prize, $200.00. Each winner will also receive a certificate.

The Contest is open to **undergraduate** medical students throughout the world. Essays may be written on any phase of the diagnosis and treatment of chest diseases (cardiovascular or pulmonary).

Contest closes on April 15, 1959. For application and further information, please write:

American College of Chest Physicians
112 East Chestnut Street
Chicago 11, Illinois, U.S.A.

Winners of the 1958 Essay Contest were:

First Prize: Eugene A. Friedberg, University of Buffalo, School of Medicine, "Murmur Production in Aortic Stenosis: An Analysis using a Hydraulic Model".

Second Prize: Ronald J. O'Reilly, University of California at Los Angeles, School of Medicine, "Clinical Recognition of Carbon Dioxide Intoxication".

Third Prize: Alan S. Deutsch, New York University, School of Medicine, "Ventricular Septal Defect: A Review".

Honorable Mention: June Hagen, University of Cape Town Medical School, "Cryptococcosis of the Lung".

VAN METER PRIZE AWARD

The American Goiter Association again offers the Van Meter Prize Award of $300.00 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the Association which will be held in the Drake Hotel, Chicago, Illinois, April 30, May 1 and 2, 1959.

The competing essays may cover either clinical or research investigations, should not exceed 3,000 words in length and must be presented in English. Duplicate typewritten copies, double spaced, should be sent to the Secretary, Dr. John C. McClintock, 149½ Washington Avenue, Albany 10, New York, not later than January 15, 1959. The Committee who will review the manuscripts is composed of men well qualified to judge the merits of the competing essays.

A place will be reserved on the program of the annual meeting for the presentation of the winning essay by the author if it is possible for him to attend.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The Part I Examinations of the American Board of Obstetrics and Gynecology, are to be held in various parts of the United States and Canada, on Friday, January 16, 1959, at 2:00 P.M.

Candidates notified of their eligibility to participate in Part I must submit their case abstracts within thirty days of notification of eligibility. No candidate may take the Written Examination unless the case abstracts have been received in the office of the Secretary.

Current Bulletins outlining present requirements may be obtained by writing to the Secretary's office.

Robert L. Faulkner, M.D.
American Board of Obstetrics
and Gynecology
2105 Adelbert Road
Cleveland 6, Ohio

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WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

The first program tea of the fall season for members of the Woman's Auxiliary of the Orleans Parish Medical Society took place at the Orleans Club on Wednesday, October 8th, at 2:30 p.m. Mrs. Albert W. Habeeb, president, received in the drawing room assisted by Mrs. William J. Rein and Mrs. Eugene H. Countiss.

Mrs. Carl J. Gulotta, program chairman, introduced Mrs. Clyde Frazier who as guest speaker gave a most interesting review of the hilarious farce "Rally Round the Flag, Boys" by Max Shulman.

In the dining room and on the tea table were arrangements of flowers of autumn shades. Presiding at the silver coffee and tea service were Mmes. David Bradley and John B. Gooch. Assisting Mrs. Daniel W. Hayes as hostesses were Mmes. John W. Bick, Jr., O. R. Depp, Warren H. Hebert and Marcus Feingold.

OUACHITA PARISH

The Women's Auxiliary to the Ouachita Parish Medical Society held its September luncheon meeting at the Bayou DeSiard Country Club with the president, Mrs. E. L. Carrol of Columbia, presiding.

Honor Guest

The honored guest at the luncheon was Dr. Fred A. Marx, president of the Ouachita Parish

Medical Society. The subject of Dr. Marx's address was "The Neuroses as Applied to Geriatrics."

Mrs. Morgan Simonton served as chairman for the luncheon, assisted by Mrs. Faheam Cannon, co-chairman. Others serving on the committee were Mrs. W. C. Cookston, Mrs. F. E. Polen, Mrs. I. J. Wolff, and Mrs. W. C. Summer.

Mrs. Branch J. Aymond, Chairman
Press and Publicity.

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BOOK REVIEWS

An Atlas of Cardiac Surgery; by Jorge A. Rodriguez, Philadelphia, Pa., W. B. Saunders Company, 1957, pp 250, Price $18.00.

This atlas represents an attempt to describe instruments, apparatus and operations used in cardiac surgery and is designed for "surgeons who are doing or are contemplating doing cardiac work, residents in training in the field, and to cardiologists, internists, pediatricians and to general physicians". Surprisingly enough, the author has almost accomplished this impossible task.

The first section is devoted to surgical anatomy of the heart and great vessels, and although the drawings are more surgically oriented than are those in a gross anatomy text, some of them are difficult to interpret because of the large number of legends. However, the heart and its adjacent structures are accurately portrayed as seen by the surgeon and this should be extremely valuable to those who are inexperienced in the field of cardiovascular surgery.

The sections on instruments, anesthesia, hypothermia and extracorporeal circulation will be of interest particularly to the pediatrician and cardiologist who desire an acquaintance, but not familiarity, with these subjects. The section on surgery of the heart and great vessels is generally clear and accurately done. The text is concise and, with drawings, provides an accurate, step-by-step description of the operations.

Because of rapid developments in the field of cardiovascular surgery, it is to be expected that an operation may be obsolete by the time it is described in the literature. This is the case with several procedures included in this volume; however, this in no way detracts from its value.

To this reviewer, at least, the atlas is of tremendous historical value since it represents a chronicle of cardiovascular surgical events from the patent ductus to the beginning of extracorporeal circulation.

Oscar Creech, Jr., M. D.

Practical Refraction, by Bernard C. Gettes, M. D., New York, N. Y. Grune & Stratton, Inc., 1957, pp. 170, $6.50.

This book has furnished many of the answers to queries propounded in one of the most important divisions of ophthalmology—refraction. The book stresses important points.

1. Testing of acuity of vision for distance and near. Many types of charts are mentioned, but most examining rooms are equipped with projectoscopes. There are many tests for near vision: the Civilian Aeronautic Authority insists on using Snellen's charts graded from 0.25 to 2.00. I had the privilege of doing this work for fifteen years.

2. Equipment may be divided into necessary or bare essentials or superfluous. I am glad to know that the author suggests a trial case and a trial frame. Green's refractor or the phoroptor are good for quick computation, but get the examiner into sloppy habits. Most of the present day ophthalmologists are too lazy to transpose the results. The author kindly suggests the use of an electric retinoscope as a qualitative measure but for more accurate measurements to get quantitative results he suggests the American Optical Co.'s plane mirror retinoscope which was used by my chief, Dr. James Thorington. Other important equipment is a lensometer, either Bausch and Lomb or American Optical Co., with which to Check the accuracy of the correspondence of the glasses with the prescription ordered.

3. The study of astigmatism is extremely important.

4. The author combines three methods in retinoscopy; one meter distance, half meter distance and motility. James Thorington used the one meter distance. Mr. Treacher Collins of Royal London Ophthalmic (Moorfields) used the half meter distance.

5. Mydriatics are covered thoroughly. The proper warning has been given about scopolamine.

6. Aphakia is extremely important. The measure of the vertex is necessary to obtain correct glasses.

7. Post-mydriatic examination is important as the glasses should be worn in comfort.

8. To prove the importance of presbyopia I presented a paper "Premature Presbyopia" before the Section on Ophthalmology A.M.A. based upon three years of research work done in the U. S. Veterans Administration.

Two valuable pieces of advice were given to me

while an Assistant at Will's Eye Hospital. J. Milton Griscom, M. D., advised "Obtain 20/20 vision or know the reason why". S. Lewis Ziegler, M. D. advised "Pick out some special topic in ophthalmology and concentrate your efforts upon this". Unfortunately I waited rather late to do this.

Two other suggestions are made which are not included in refraction. A. C. Bedell, M. D. was always extremely annoyed by the use of fundoscopy instead of ophthalmoscopy. I am sure that the former great ophthalmologists are turning over in their graves when chorioretinitis is used instead of retinochoroiditis.

I feel that Bernard C. Gettes, M.D. has conferred a great favor upon ophthalmologists and that his services as an Instructor should be obtained for the American Academy of Ophthalmology and Otolaryngology and elsewhere.

WILLIAM F. BONNER, M. D.

Placement of Adoptive Children, by J. Richard Wittenborn, Springfield, 1957. Charles C Thomas, Publisher, Price $4.75.

Admittedly retrospective, and based on a necessarily small selected group of cases, this study affirms that a healthy attitude of adoptive parents is the major element governing overall successful adoptions.

Utilizing all available information resulting from prior studies of all parties concerned, and relating these to various measurable and descriptive aspects in careful follow-up studies—particularly of the adoptive children themselves—values emerge which bear directly on current child-placement practices and emphasize the need for even larger and more comprehensive studies of this sort to provide more explicit guides for more successful adoption practices and policies.

Though successful adoption is inherent mainly in the characteristics and circumstances of adoptive parents—many such intrinsic factors still require more precise definition. Particular efforts were made to find some indication that pre-adoptive examinations of infants — as developed and done by Dr. Arnold Gesell and his associates at Yale—had "practically useful predictive validity"; it was concluded that the data provided no such indication.

Contrasting results of agency and independent placements in this admittedly selected sample, the evidence tended to favor the infants who had been placed independently. This observation led to considerable speculation which should be of major interest to all persons concerned directly or indirectly with efforts to improve adoption practices.

Contributing so much valuable data, primarily psychological, pertinent to successful placement of adoptive children, the authors of this well-written book deserve the congratulations and thanks of all concerned. The very provocative and stimulating nature of the questions raised from the various studies reported in this volume certainly provides much food for thought and potential controversy; it will be of major interest both to adoptive parents and professional workers in this field.

R. V. PLATOU, M. D.

Headache: Diagnosis and Treatment; by Robert E. Ryan, St. Louis, Missouri, C. V. Mosby Company, 2d. ed., 1957 pp. 421, Price $6.75.

The author attempts in this book to cover nearly every cause of headache known to man. The result is that too many entities are touched upon, some in which headache is an insignificant or doubtful part of the disorder. Certainly, for instance, there is some question as to whether or not constipation per se is responsible for the production of headache; the complaint of headache is of minor importance in the management of such diseases as rabies, acute botulism, etc.

It would also be to the advantage of the book and its readers if a more complete section had been devoted to therapeutic agents. In its present form, there is much repetition on drugs throughout the text.

Some sections, however, are discussed clearly and rather thoroughly, especially the sections dealing with vascular headaches.

L. J. RUTLEDGE, M. D.

PUBLICATIONS RECEIVED

Grune & Stratton, Inc., N. Y.: So You Have Glaucoma, by Everett R. Veirs, M.D.; Cerebral Vascular Diseases, edited by Clark H. Millikan.

Hoeber-Harper, N. Y.: Autopsy Diagnosis and Technic, by Otto Saphir, M.D. (4th edit.)

C. V. Mosby Co., St. Louis: The Care of the Geriatric Patient, edited by E. V. Cowdry, Ph.D.

Philosophical Library, N. Y.: Schizophrenia, by Manfred Sakel, M.D.

G. P. Putnam's Sons, N. Y.: What we DO Know About Heart Attacks, by John W. Gofman, M.D.

W. B. Saunders Co., Phila.: Poisoning, A Guide to Clinical Diagnosis and Treatment, by W. F. von Oettingen, M.D. (2nd edit.).

Charles C Thomas, Publisher, Springfield, Ill.: Applied Medical Library Practice, by Thomas E. Keys, A.B., M.A., with chapters by Catherine Kennedy, B.S., L.S., and Ruth M. Tews, B.S., L.S.

U. S. Government Printing Office, Washington, D. C.: Emergency War Surgery, U. S. Armed Forces Issue of NATO Handbook, prepared for use by the Medical Services of NATO Nations.



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*A Symposium on the Pharmacologic Effects of Dartal on the Liver, Chicago, Searle Research Laboratories, Feb. 7, 1958.

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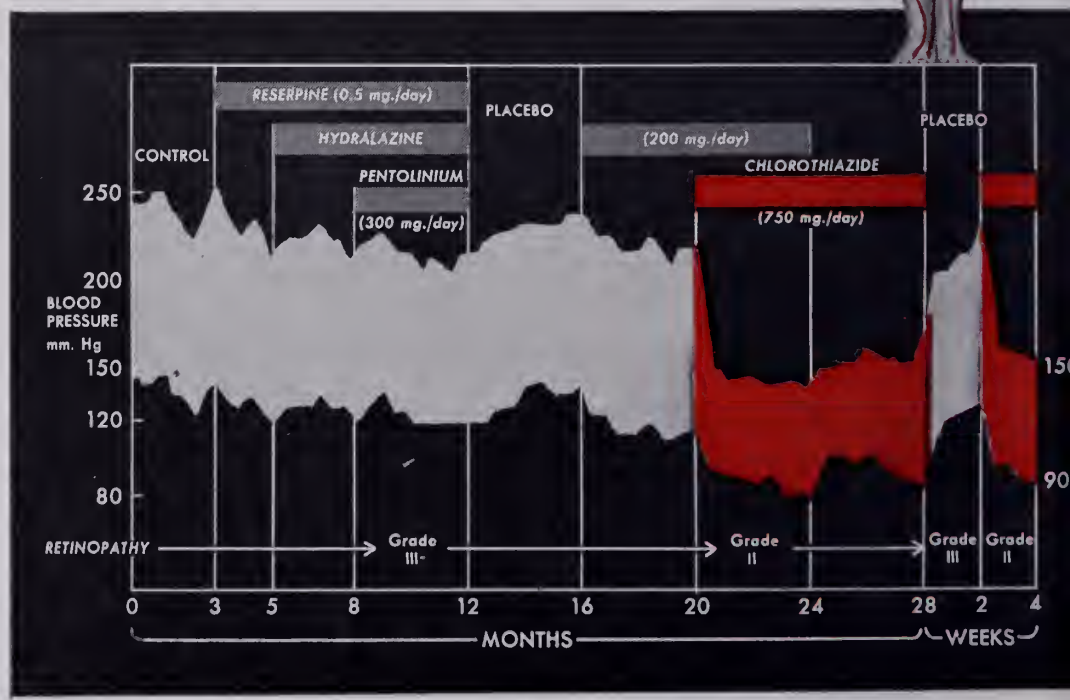
Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

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Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

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In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension," Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8: 1, September, 1957.

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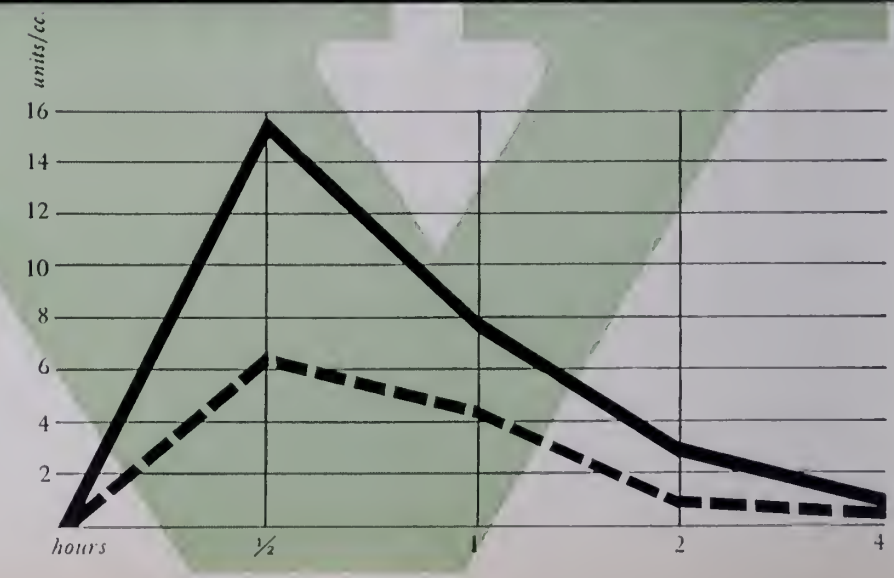
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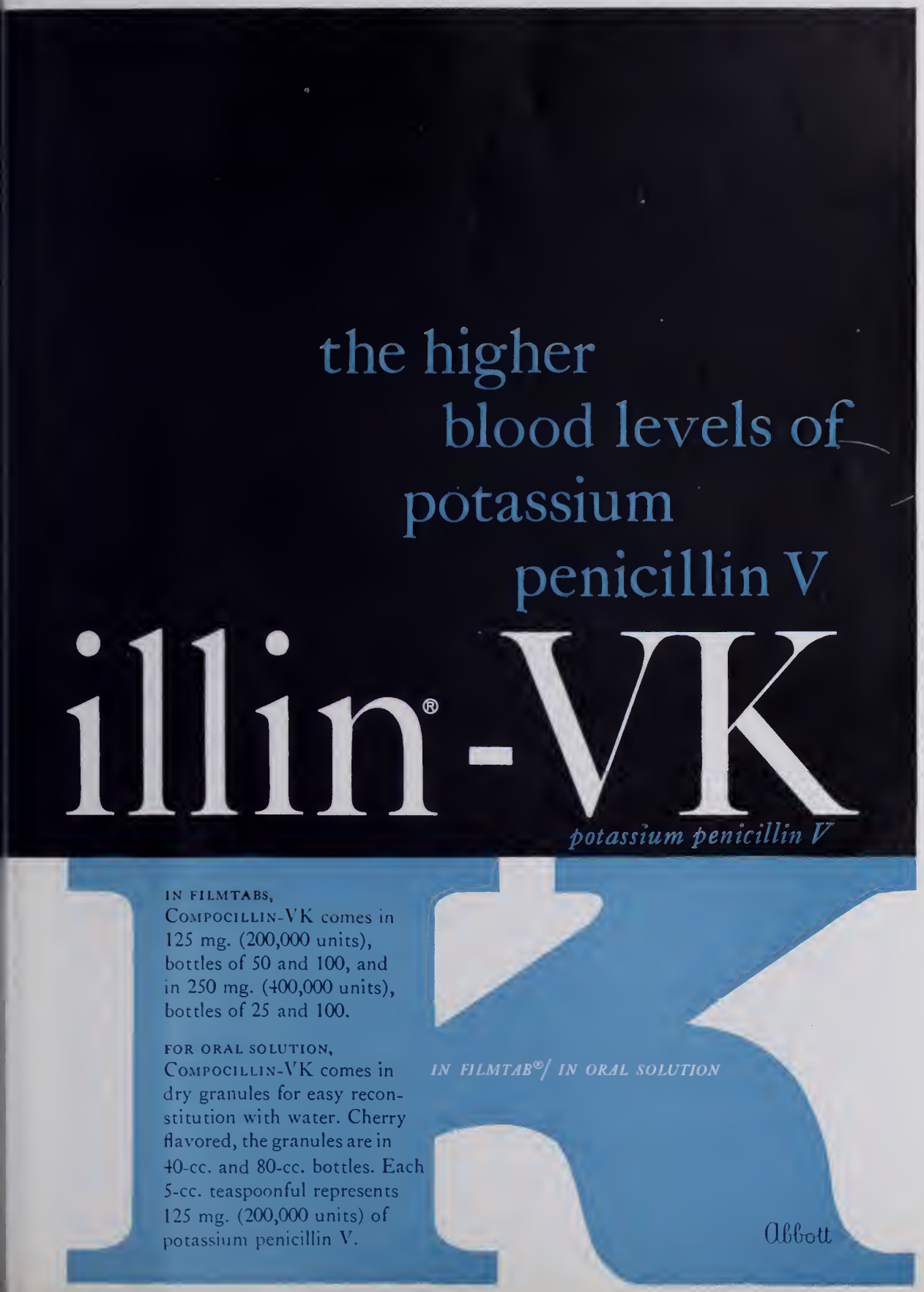


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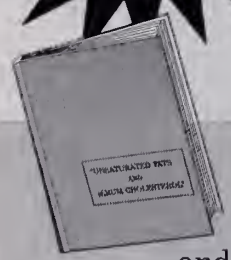
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references:
1 Grieble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958
2. Editorial: *New England J. Med.* 258:48-49, 1958.

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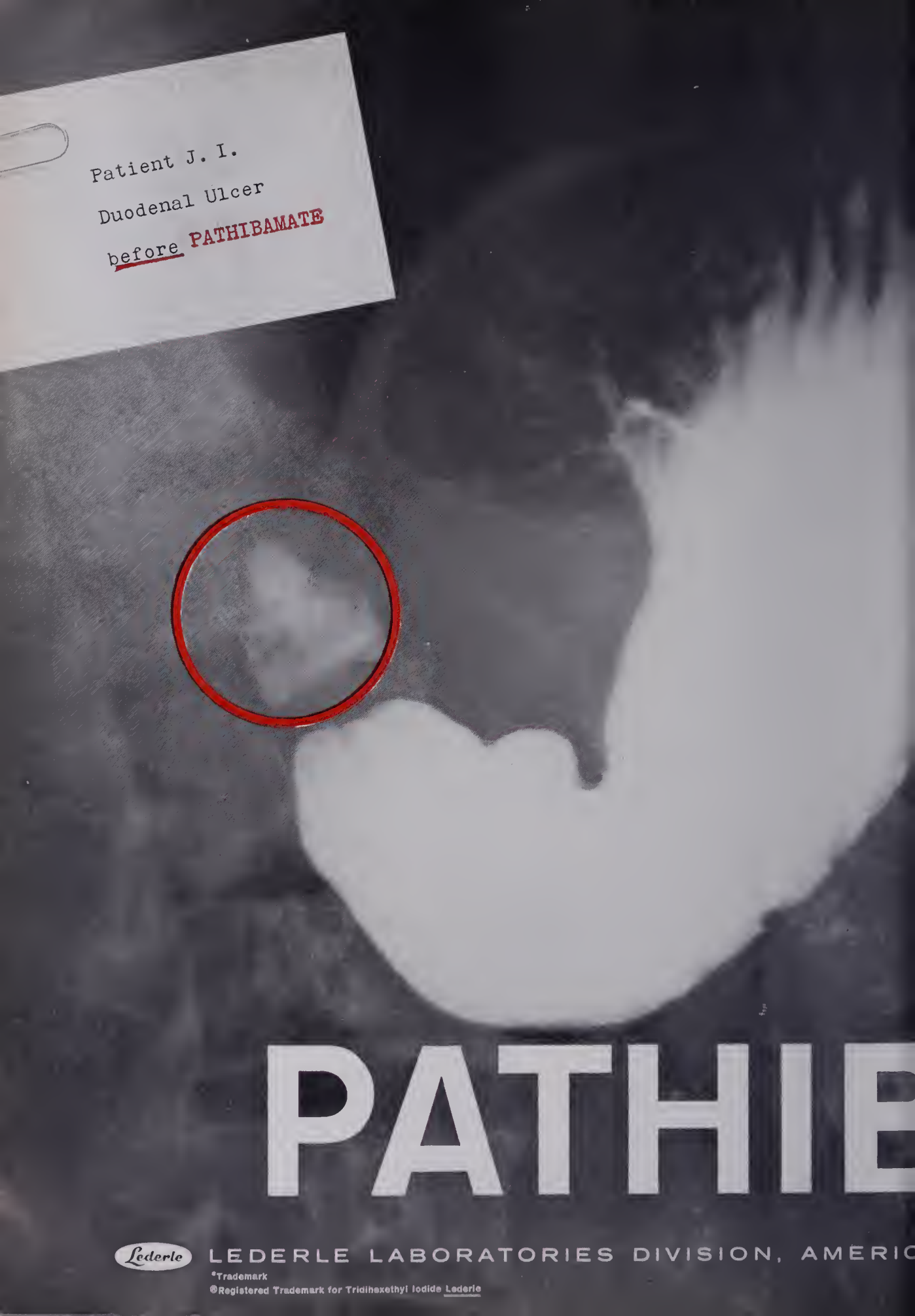
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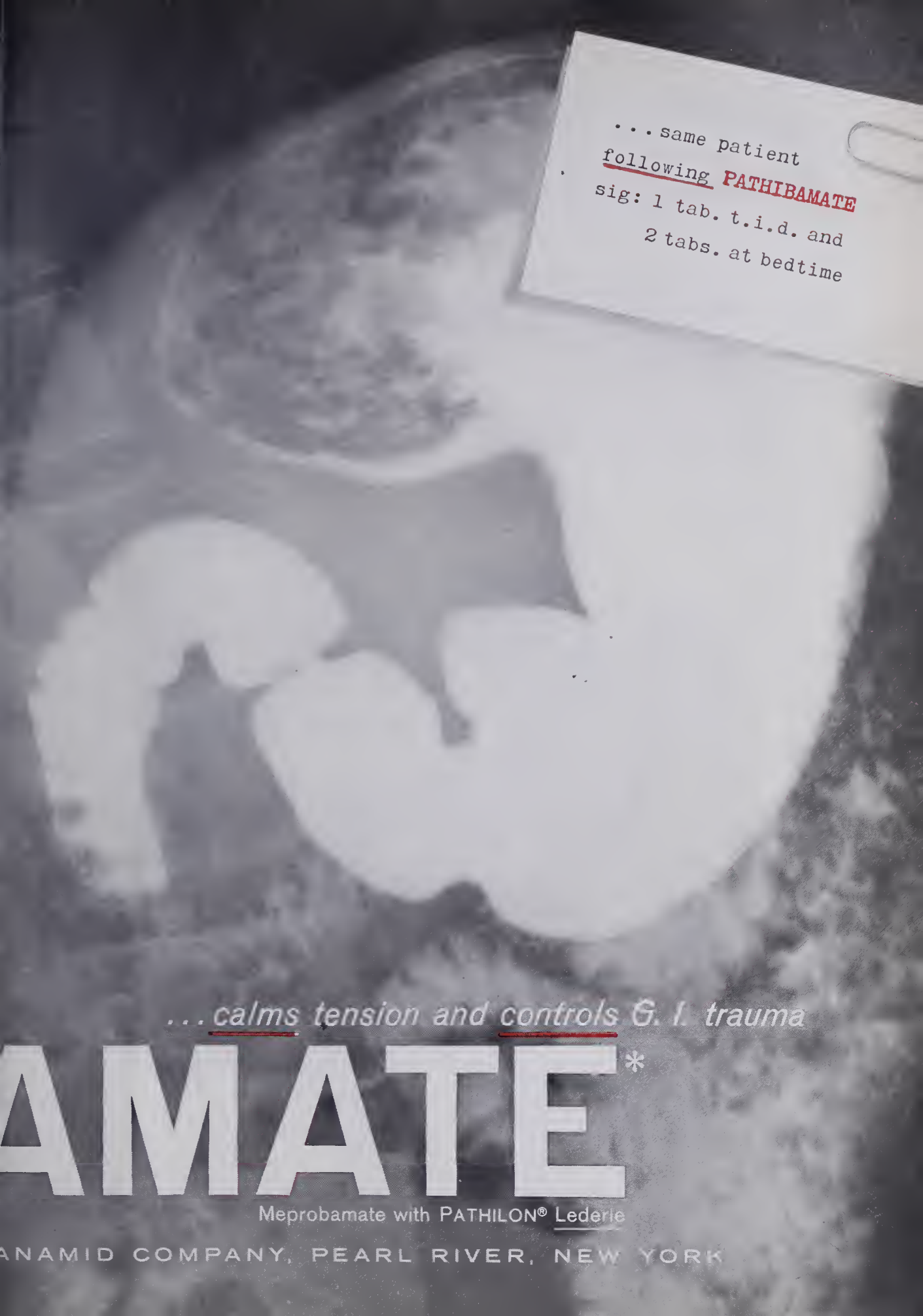
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In mild to moderate cases, Raudixin is frequently sufficient.

Base line therapy with Raudixin permits lower dosage of more toxic agents. The incidence and side effects of these agents are minimized. Diuretics often potentiate the antihypertensive effect of Raudixin.

*Finnerty, F. A. Jr.: New York State J. Med. 57:2957 (Sept. 15) 1957.

SQUIBB *Squibb Quality—the Priceless Ingredient*

"RAUDIXIN" IS A SQUIBB TRADEMARK



Hospital practice of infant feeding

Self-regulated schedules

The newborn may become a feeding problem if the formula is excessive or if he is awakened to be fed forcefully.

The young infant may balk at new food or procedure. The older infant, devoted to his bottle, may resent weaning—it takes a certain readiness for weaning to make the change agreeable. Later, the infant may become somewhat independent and arbitrary—what he enjoyed yesterday he rejects today.

WHOLE MILK FORMULAS

Age Months	Whole Milk Fluid Oz.	Water Oz.	Karo Syrup Tbsp.	Each Feeding Oz.	Number of Feedings in 24 Hours	Total Calories
Birth	10	10	2	3	6	320
1	12	13	3	4	6	532
2	15	13	3	4½	6	480
3	17	9	3	5	5	520
4	20	11	3½	6	5	610
5	23	11	4	6½	5	700
6	26	10	4	7	5	760
7	28	11	3	7½	5	740
8	30	11	2½	8	5	750
10	32	9	2	8	5	760
12	32	9	0	8	5	640

EVAPORATED MILK FORMULAS

Age Months	Evaporated Milk Fluid Oz.	Water Oz.	Karo Syrup Tbsp.	Each Feeding Oz.	Number of Feedings in 24 Hours	Total Calories
Birth	6	12	2	3	6	380
1	8	16	3	4	6	532
2	9	14	3	4½	5	576
3	10	15	3½	5	5	650
4	12	18	4	6	5	768
5	12	21	4	6½	5	768
6	13	22	4	7	5	812
7	14	21	3	7	5	796
8	15	20	2	7	5	780
10	16	16	1	8	4	764
12	16	16	0	8	4	704

When a feeding problem is in the making, sensible decorum will solve it. Nature invites infant feeding cooperation through hunger. If hunger is appeased on demand rather than by clock there will be fewer problems—the baby is the best judge of when he wants food and how much.

Feeding must be adapted to the infant individually to make it a pleasurable experience. This is the current objective in successful infant feeding formulated for normal infants in the charts below:

ADVANTAGES OF KARO® SYRUP IN INFANT FEEDING

Composition: Karo Syrup is a superior dextrin-maltose-dextrose mixture because the dextrins are non-fermentable and the maltose is rapidly transformed into dextrose which requires no digestion.



Concentration: Volume for volume Karo Syrup furnishes twice as many calories as similar milk modifiers in powdered form.

Purity: Karo Syrup is processed at sterilizing temperatures, sealed for complete hygienic protection and devoid of pathogenic organisms.

Low Cost: Karo Syrup costs 1/5 as much as expensive milk modifiers and is available at all food stores.

Free to Physicians—Book of Infant Feeding Formulas with convenient schedule pads. Write: Karo Infant Feeding Guide, Box 280, New York 46, N. Y.

CORN PRODUCTS REFINING COMPANY

Now–the most widely prescribed tranquilizer[1] in sustained release capsules

Meprospan*

meprobamate (Miltown®) capsules

q. 12 h.



Two capsules on arising **last all day**
Two capsules at bedtime **last all night**
relieve nervous tension on a *sustained* basis, without between-dose interruption

"The administration of meprobamate in sustained action form [Meprospan] produced a more uniform and sustained action ... these capsules offer effectiveness at reduced dosage."[2]

Dosage: 2 Meprospan capsules q. 12 h.
Supplied: 200 mg. capsules, bottles of 30.

1. Meprobamate is more widely prescribed than any other tranquilizer. Source: Independent research organization; name on request.
2. Baird, H. W., III: A comparison of Meprospan (sustained action meprobamate capsule) with other tranquilizing and relaxing agents in children. Submitted for publication, 1958.

Literature and samples on request

WALLACE LABORATORIES, *New Brunswick, N. J.*

In potentially-serious infections...

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The Upjohn Company, Kalamazoo, Michigan [illegible]

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Panalba*

(Panmycin Phosphate plus Albamycin**)

your broad-spectrum antibiotic of first resort

effective against more than 30 common pathogens, even including resistant staphylococci.



Available forms:

1. Panalba Capsules, bottles of 16 and 100 capsules. Each capsule contains:

Panmycin phosphate (tetracycline phosphate complex) equivalent to tetracycline hydrochloride . . . . . 250 mg.
Albamycin (as novobiocin sodium) 125 mg.

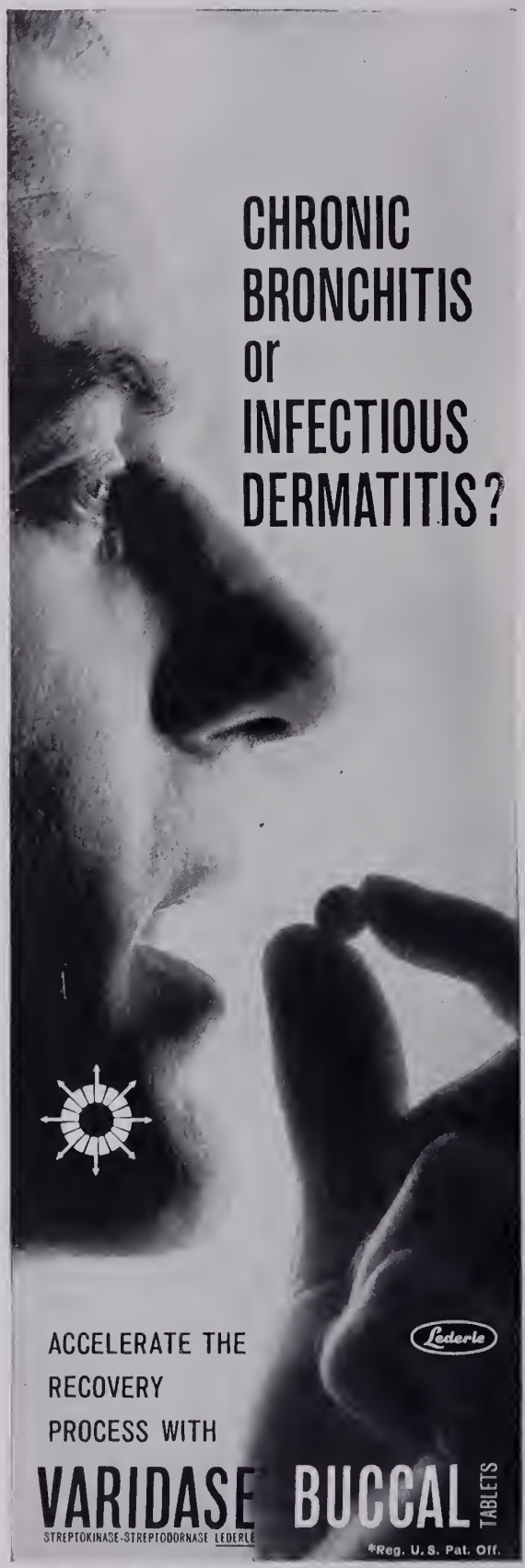
2. Panalba KM †† Flavored Granules. When sufficient water is added to fill the bottle, each teaspoonful (5 cc.) contains:

Panmycin (tetracycline) equivalent to tetracycline hydrochloride . . . . . 125 mg.
Albamycin (as novobiocin calcium) 62.5 mg.
Potassium metaphosphate . . . . 100 mg.

Dosage.

Panalba Capsules
Usual adult dosage is 2 capsules q.i.d.

Panalba KM Granules
For the treatment of moderately acute infections in infants and children, the recommended dosage is 1 teaspoonful per 15 to 30 lbs. of body weight per day, administered in 2 to 4 equal doses. Severe or prolonged infections require higher doses. Dosage for adults is 2 to 4 teaspoonfuls 3 or 4 times daily, depending on the type and severity of the infection.



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MORE THAN 16 MILLION DOSES ADMINISTERED WITH SAFETY AND EFFICACY.

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if your patient wears tinted glasses and sighs frequently...?

She may have an anxiety state. The tinted glasses may be worn as a shield against the world—and to relieve the photophobia resulting from pupillary dilatation caused by anxiety-induced hyperadrenalism. The sighs may be a result of fatigue from emotional unrest.

Source—Meyer, O. O.: Northwest Med. *53*:1006, 1954.

*4 findings from a recent study**

calmative **nostyn**® Ectylurea, AMES (2-ethyl-*cis*-crotonylurea)

1. Anxiety and nervous tension appeared to be most benefited by NOSTYN.
2. Seventy per cent of patients obtained some degree of relief.
3. Greater inward security and serenity were experienced and expressed.
4. Mental depression did not develop in patients previously depressed by meprobamate or a similar drug.

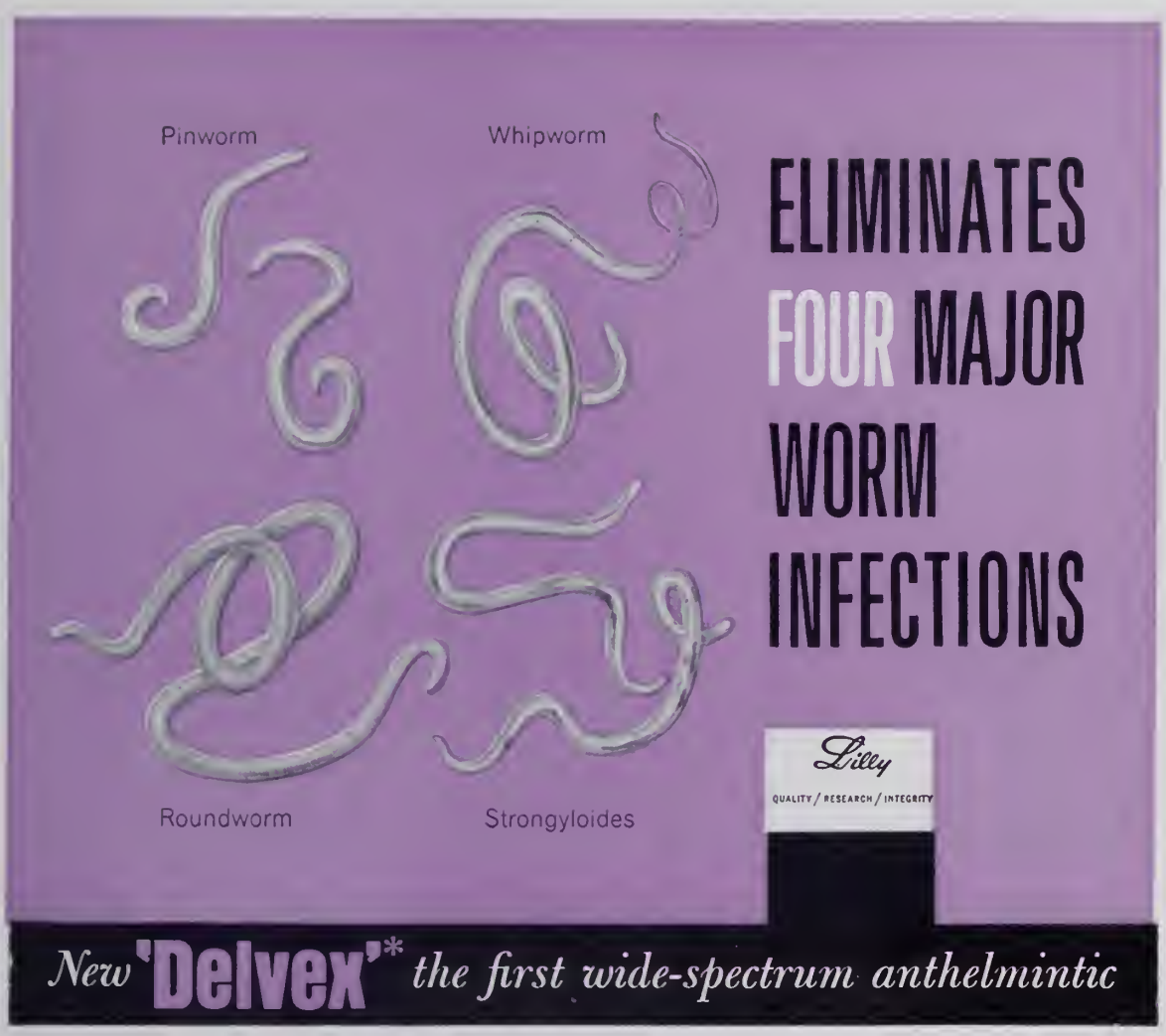
dosage: 150-300 mg. (½ or 1 tablet) three or four times daily. *supplied:* NOSTYN tablets, 300 mg., scored. Bottles of 48 and 500.

*Bauer, H. G.; Seegers, W.; Krawzoff, M., and McGavack, T. H.: New York J. Med. *58*:520 (Feb. 15) 1958.

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Clinical studies[1] *show:*

- 'Delvex' is effective orally, usually within five days, against four of the five most common worm infections:

Pinworm	Whipworm
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- It also inhibits, and sometimes eliminates, hookworm infection.
- It is fully effective in both single and multiple infections and in both heavy and light infections.
- It eliminates pinworm infection in 100 percent of patients.
- It is the first effective and practicable agent for the oral treatment of strongyloidiasis and whipworm infection.
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*'Delvex' (Dithiazanine Iodide, Lilly)

1. Swartzwelder, J. C., et al.: J. A. M. A., 165:2063, 1957.

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"...this patient did not receive any transfusion of blood or any hematinic other than the intramuscular dose of iron. His initial concentration of hemoglobin measured 5.8 gm. per 100 cc. of blood and in spite of operation [hemorrhoidectomy] and further loss of blood the concentration increased to 12.2 gm. within less than 3 weeks. Concomitantly with the hematologic improvement there was clinical improvement and subsidence of the initial primary symptoms [unusual fatigability, dyspnea, palpitation on exertion]."[1]

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"...she had an excellent response with a reticulocyte peak of 5.3 per cent on the seventh day, and a complete disappearance of the anemia and conversion from hypochromic to normochromic cells by the end of two months. She experienced remarkable improvement in pep and sense of well-being coincident with the alleviation of her anemia."[2]

(1) Higgins, A. B. Proc. Staff Meet. Mayo Clin. 32:705 (Dec. 11) 1957.
(2) Best, W. R., Lewis, J. and Lamarzi, L. R.. M. Clin. North America (Jan.) 1956, p. 2.

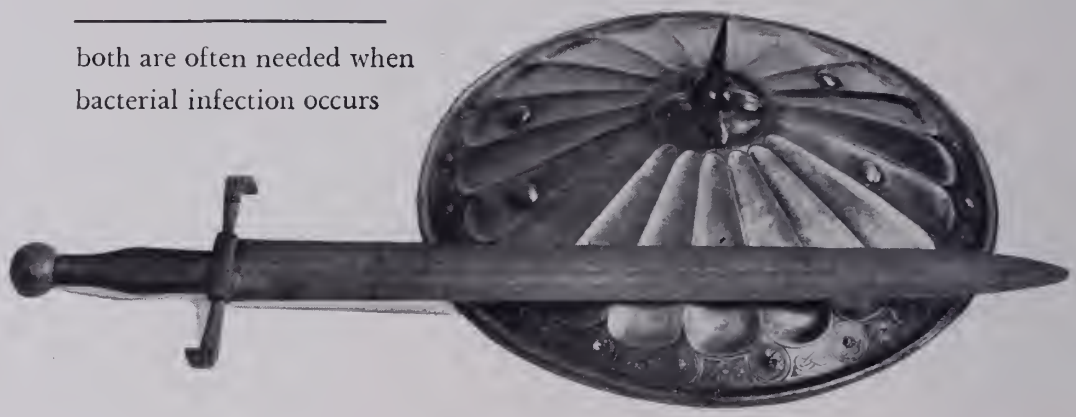
Supplied: 2 cc. and 5 cc. ampuls, boxes of 4. Physician's directions in every box. Each cc. contains 50 mg. of elemental iron per cc. Request brochure NDA 17, literature.

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▮ prompt, aggressive
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monilial complications

both are often needed when
bacterial infection occurs



for a direct strike at infection
Mysteclin-V contains tetracycline phosphate complex

It provides a direct strike at all tetracycline-susceptible organisms (most pathogenic bacteria, certain rickettsias, certain large viruses, and Endamoeba histolytica).

It provides the new chemical form of the world's most widely prescribed broad spectrum antibiotic.

It provides unsurpassed initial blood levels — higher and faster than older forms of tetracycline — for the most rapid transport of the antibiotic to the site of infection.

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Mysteclin-V contains Mycostatin

It provides the antifungal antibiotic, first tested and clinically confirmed by Squibb, with specific action against Candida (Monilia) albicans.

It acts to prevent the monilial overgrowth which frequently occurs whenever tetracycline or any other broad spectrum antibiotic is used.

It protects your patient against antibiotic-induced intestinal moniliasis and its complications, including vaginal and anogenital moniliasis, even potentially fatal systemic moniliasis.

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Squibb Tetracycline Phosphate Complex (Sumycin) and Nystatin (Mycostatin)

Capsules *(250 mg./250,000 u.), bottles of 16 and 100.* Half-strength Capsules *(125 mg./125,000 u.), bottles of 16 and 100.*
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'MYSTECLIN'®, 'SUMYCIN'®, AND 'MYCOSTATIN'® ARE SQUIBB TRADEMARKS



all cold symptoms

New timed-release tablet provides:

...the superior decongestant and antihistaminic action of Triaminic

...non-narcotic cough control as effective as with codeine, but without codeine's drawbacks

...an expectorant to augment demulcent fluids

...the specific antipyretic and analgesic effect of well-tolerated APAP

...the prompt and prolonged activity of timed-release medication

Each* TUSSAGESIC *Tablet contains:

TRIAMINIC®	50 mg.
(phenylpropanolamine HCl	25 mg.;
pheniramine maleate	12.5 mg.;
pyrilamine maleate	12.5 mg.)
Dormethan (brand of dextromethorphan HBr)	30 mg.
Terpin hydrate	180 mg.
APAP (N-acetyl-para-aminophenol)	325 mg.

Tussagesic Tablets provide relief from *all* cold symptoms in minutes, lasting for hours.

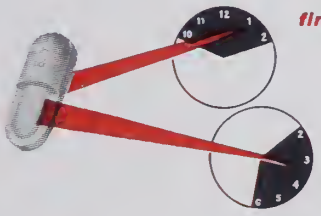
Dosage: One tablet in the morning, mid-afternoon, and in the evening, if needed. The tablet should be swallowed whole to preserve the timed-release action.

To reduce upper respiratory congestion and irritating secretions.

For non-narcotic control of the cough reflex.

To augment demulcent respiratory secretions.

For specific, highly effective antipyresis and analgesia.



first—3 to 4 hours of relief from the outer layer

then—3 to 4 more hours of relief from the inner core

Also available—for those who prefer palatable liquid medication—

Tussagesic suspension

NEW

Tussagesic

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

now—an antibiotic troche that

STOPS COUGH TOO





The *cough control* provided by homarylamine (a non-narcotic antitussive) approximates that of codeine.

Three antibiotics (bacitracin, tyrothricin, neomycin) act in combination against a wide variety of pathogens—with little danger of side reactions.

The anesthetic-analgesic effect of benzocaine brings *soothing relief* to inflamed tissues of mouth and throat.

PENTAZETS now extend the therapeutic usefulness of convenient troche medication. Each pleasant-tasting PENTAZETS troche acts promptly against the most bothersome aspects of mouth and throat irritations.

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antitussive—antibiotic-anesthetic—analgesic troches

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Dosage: Three to 5 troches daily for 3 to 5 days.
Supplied: In vials of 12.
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new

Tao*

PRONOUNCED TAY-O

(brand of triacetyloleandomycin with glucosamine)

Capsules / Oral Suspension

designed for effective control of common gram-positive infections

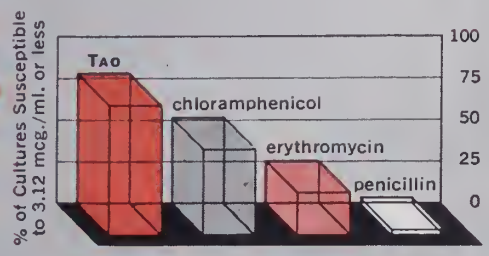
effective . . .

CLINICAL RESULTS	adults	children	all Staph infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were Staph. aureus and Staph. albus. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, Hemophilus influenzae.

even against resistant staph[1,2] . . .

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.[1]



well tolerated . . .

REACTIONS: (a) adults	(b) children
Total—9.2% (20 out of 217)	Total—0.6% (1 out of 167)
Skin rash—1.4% (3 out of 217)	Skin rash—none
Gastrointestinal—7.8% (17 out of 217)	Gastrointestinal—0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus . . . stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation.

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since Tao is therapeutically stable in gastric acid, it may be administered at any time, without regard to meals.

Supplied: Tao Capsules—250 mg. and 125 mg.; bottles of 60. Tao for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 476.

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*TRADEMARK



Shredded Cabbage



Cottage Cheese



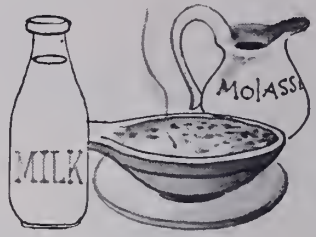
Watercress



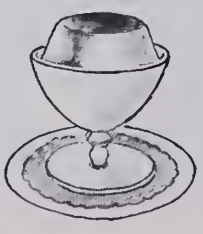
Oysters



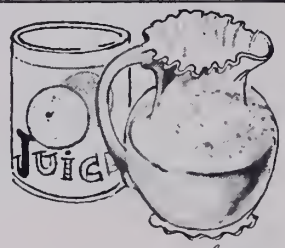
Beef Liver



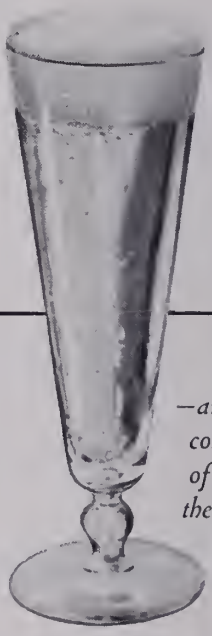
Oatmeal



Custard



Orange Juice



Foods to give your patient good nutrition naturally—and tastefully, too!

—and, with your consent, a glass of beer to make them even better

The High-Vitamin, High-Mineral Diet

Shredded new cabbage and carrot slaw goes nicely with any meal, combining vitamins A, C, and calcium. Dried apricots and figs stuffed with cottage cheese and peanuts on watercress provide calcium, iron, vitamins A, B_2, niacin and C. Oysters are rich in iron, calcium and carry vitamins A and D, too.

Beef liver ranks high in iron, vitamins A and B-complex. Oatmeal, rich in iron, gets a calcium and vitamin B_6 bonus when served with molasses and milk. Custard contains calcium and vitamins A, B_1, B_2. A topping of orange juice concentrate adds Vitamin C.

And with a glass of beer*—at your discretion—your patient will find his diet interesting and ample without straying from your instructions.

*An 8-oz. glass of beer contains 10 mg. calcium, 50 mg. phosphorus, 1/8 minimum daily requirement of niacin, and smaller amounts of other B-complex vitamins. (Average of American beers)

United States Brewers Foundation
Beer—America's Beverage of Moderation

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New vitamin-mineral supplement
in delicious chocolate-like nuggets



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or take—
than Delectavites.
A real treat . . .
the children's favorite . . .
tops with adults, too.

Each nugget contains:

Vitamin A	5,000 Units*
Vitamin D	1,000 Units*
Vitamin C	75 mg.
Vitamin E	2 Units†
Vitamin B-1	2.5 mg.
Vitamin B-2	2.5 mg.
Vitamin B-6	1 mg.
Vitamin B-12 Activity	3 mcg.
Panthenol	5 mg.
Nicotinamide	20 mg.
Folic Acid	0.1 mg.
Biotin	30 mcg.
Rutin	12 mg.
Calcium Carbonate	125 mg.
Boron	0.1 mg.
Cobalt	0.1 mg.
Fluorine	0.1 mg.
Iodine	0.2 mg.
Magnesium	3.0 mg.
Manganese	1.0 mg.
Molybdenum	1.0 mg.
Potassium	2.5 mg.

*U.S.P. UNITS †INT. UNITS

Dose: One Nugget per day
Supplied: Boxes of 30—one month's supply
Boxes of 90—three months' supply or family package.

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KENILWORTH, N. J.

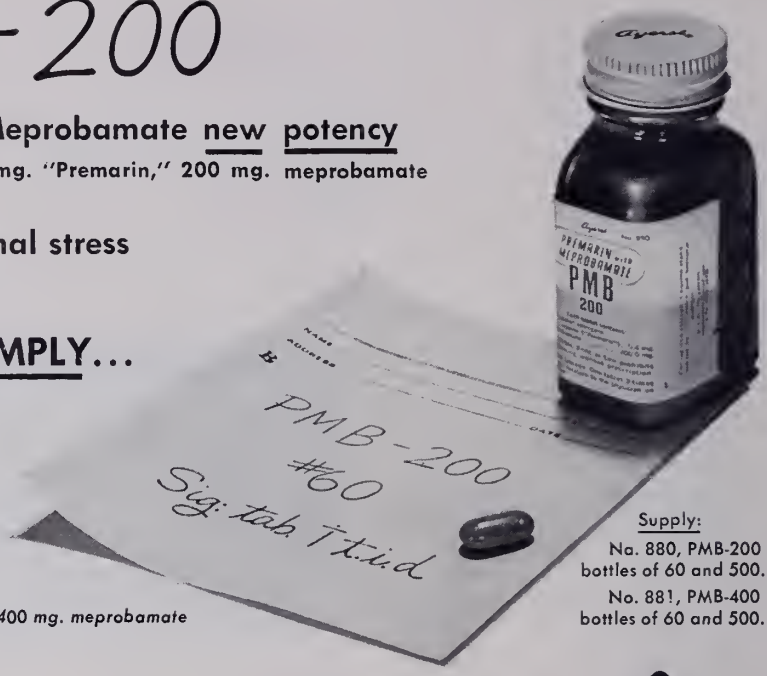
PMB-200

"Premarin" with Meprobamate new potency

Each tablet contains 0.4 mg. "Premarin," 200 mg. meprobamate

For undue emotional stress in the menopause

WRITE SIMPLY...



Also available as PMB-400 (0.4 mg. "Premarin," 400 mg. meprobamate in each tablet).

Supply:
No. 880, PMB-200 bottles of 60 and 500.
No. 881, PMB-400 bottles of 60 and 500.

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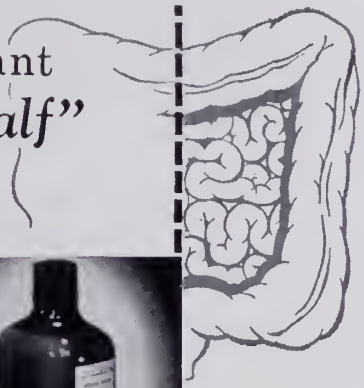


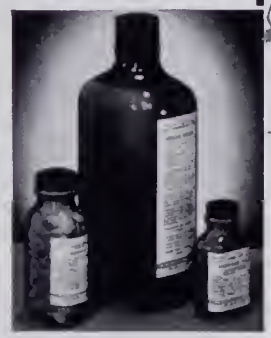
NEW! TARCORTIN LOTION
excellent for lesions of head and hands
SUPPLIED: plastic squeeze bottles, ½ oz.

1. Welsh, A. L., and Ede, M.: J.A.M.A. *166*:158, 1958.
2. Bleiberg, J.: J.M. Soc. New Jersey *53*:37, 1956.
3. Abrams, B. P., and Shaw, C.: Clin. Med. *3*:839, 1956.
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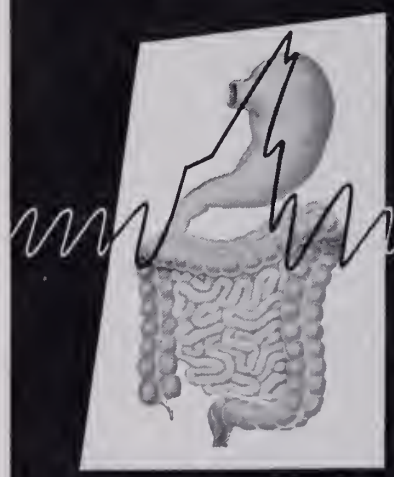
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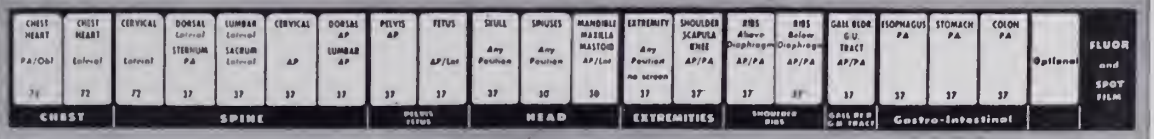


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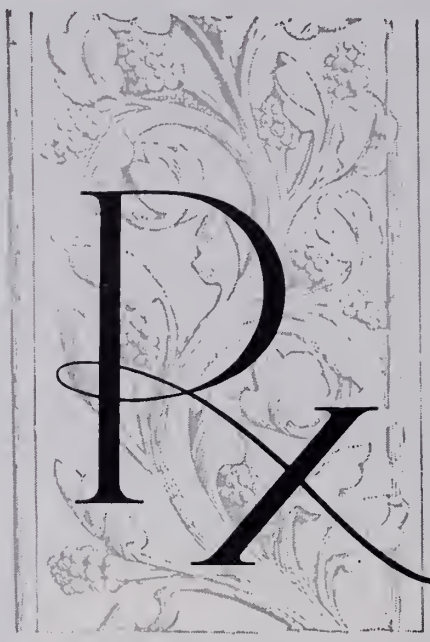
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Ligamentous strains	8	4	4	—	—
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Whiplash injury	3	2	1	—	—
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STUDY 3[5]		"excellent"			
Herniated disc	8	6	2	—	—
Acute fibromyositis	8	8	—	—	—
Torticollis	1	—	—	1	—
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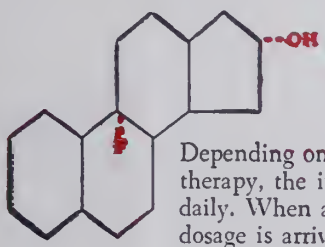
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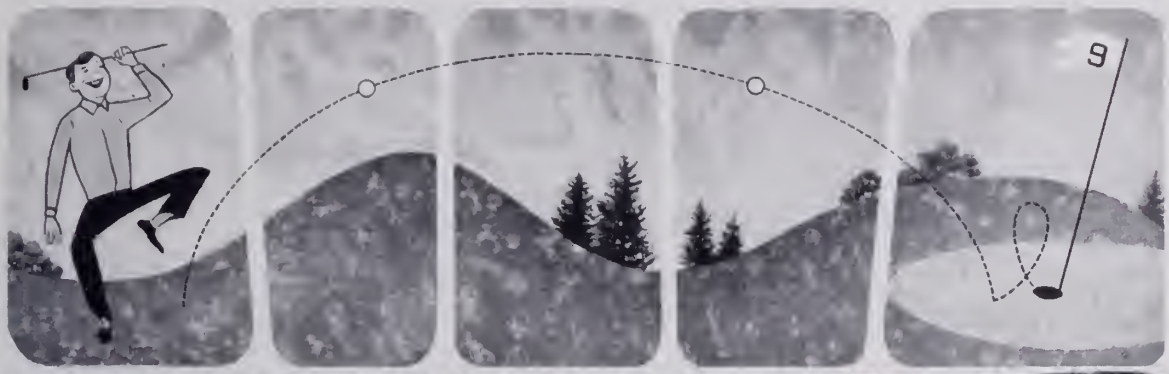
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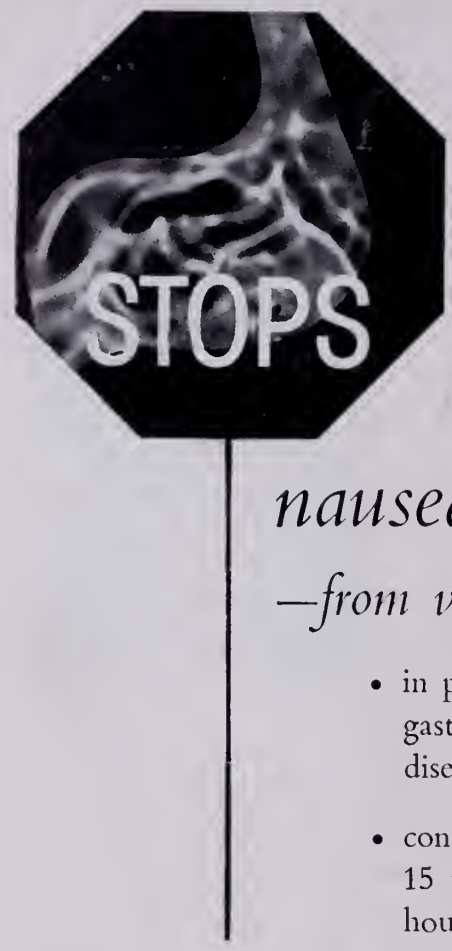
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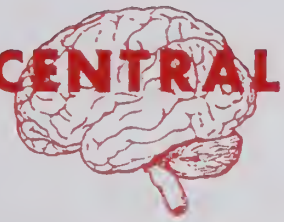
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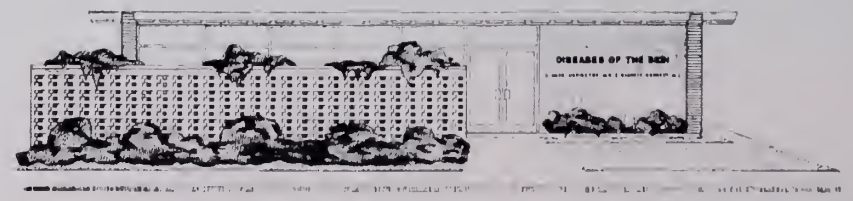
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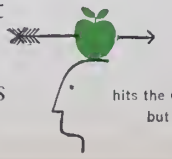
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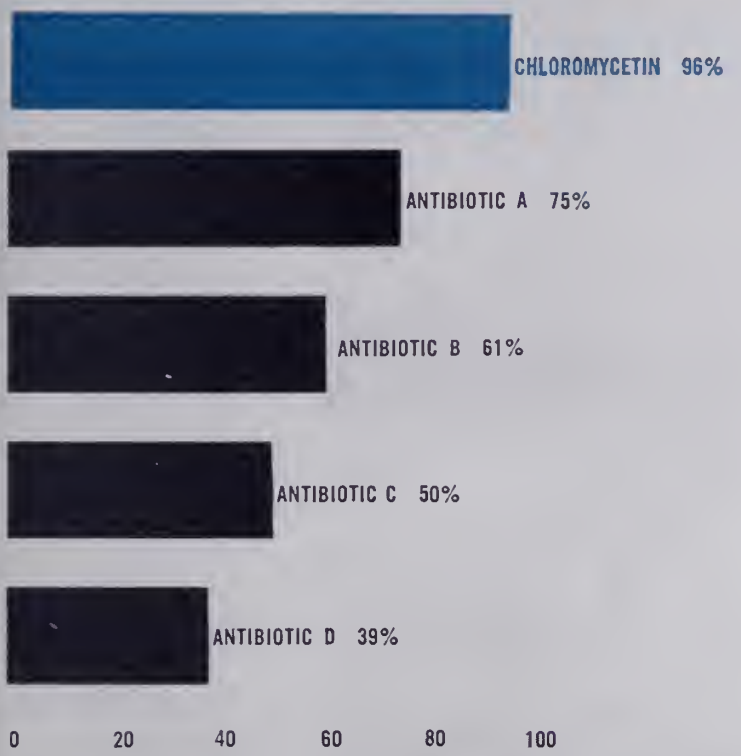
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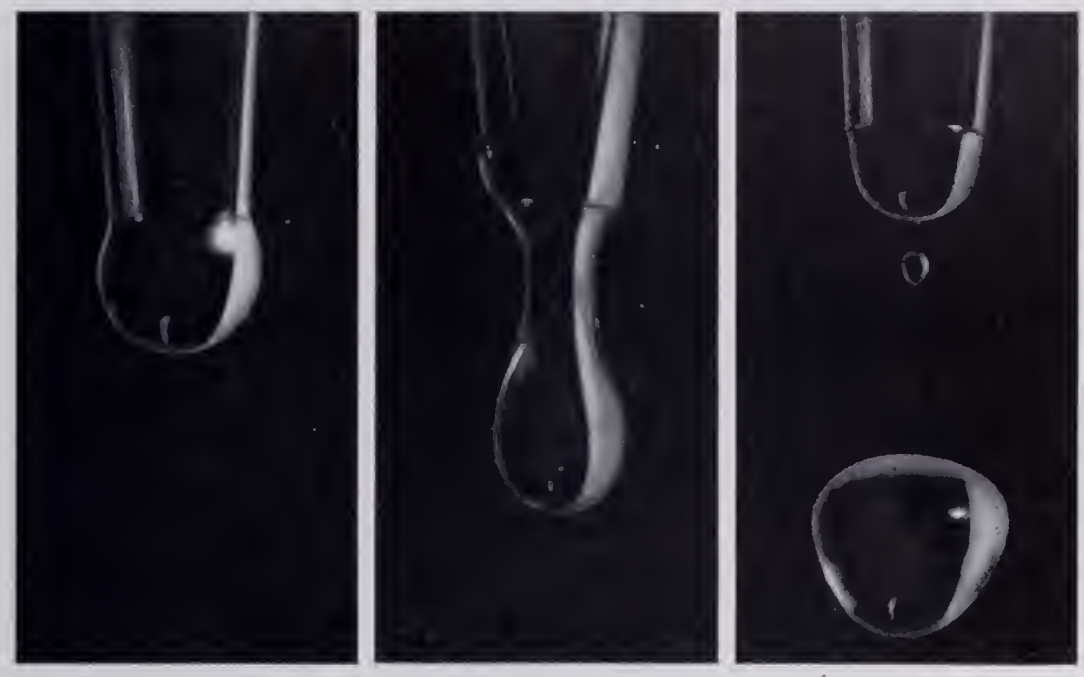
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References:

1. Boland, E.W.: California Med. 88:417 (June) 1958.
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4. Bunim, J.J., et al.: Paper read before the Am. Rheum. Assoc., June 21, 1958, San Francisco, Cal.

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REFERENCES:

1. Eisenberg, B. C.: Clinical Medicine *5*:897-904 (July) 1958.
2. Feinberg, A. R., et al.: J. Allergy *29*:358 (July) 1958.
3. Robinson, H. M., et al.: So. Med. J. *50*:1282 (Oct.) 1957.

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Albamycin (as novobiocin calcium). 62.5 mg.
Potassium metaphosphate . . . . . 100 mg.

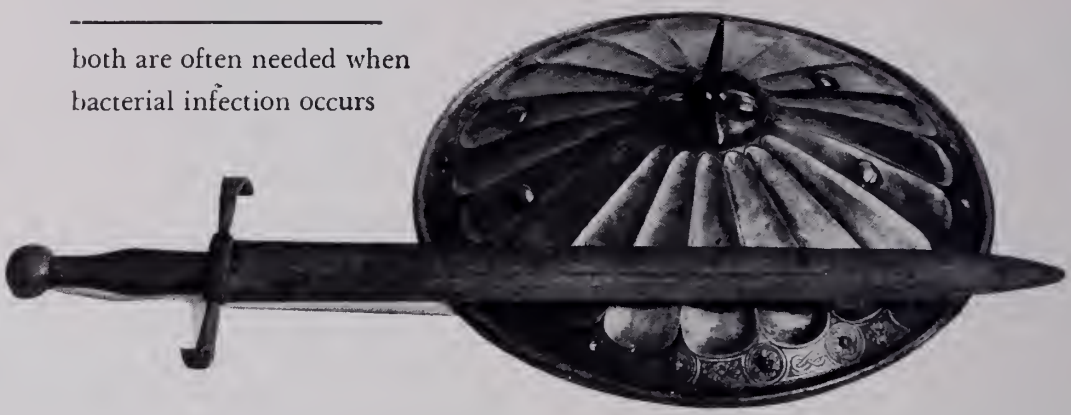
Dosage:

Panalba Capsules
Usual adult dosage is 2 capsules q.i.d.

Panalba KM Granules
For the treatment of moderately acute infections in infants and children, the recommended dosage is 1 teaspoonful per 15 to 20 lbs. of body weight per day, administered in 3 to 4 equal doses. Severe or prolonged infections require higher doses. Dosage for adults is 2 to 4 teaspoonfuls 3 or 4 times daily, depending on the type and severity of the in-

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both are often needed when
bacterial infection occurs



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INDICATIONS FOR OPEN HEART SURGERY USING TEMPORARY CARDIOPULMONARY BYPASS * †

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Houston, Texas

During the past two and one-half years 465 patients were operated upon using a pump oxygenator which permitted open cardiotomy during temporary cardiopulmonary bypass (Table 1). Among these patients 392 had congenital and 73 acquired lesions. From this experience certain conclusions may be made regarding the present status of open heart surgery based upon operative risk and late follow-up results. Although current opinions are subject to change as experience increases, indications for operation must be determined mostly by the results already obtained. Anticipated results for various lesions may thus be categorized as good, fair, and poor.

TABLE 1
LESIONS OPERATED UPON DURING TEMPORARY CARDIOPULMONARY BYPASS

Congenital		
Ventricular Septal Defect		164
Atrial Septal Defect		123
Ostium Secundum	(90)	
Ostium Primum	(20)	
A-V Communis	(13)	
Tetralogy of Fallot		29
Aortic and Subaortic Stenosis		20
Pulmonic and Infundibular Stenosis		22
Total Anomaly Pulmonary Venous Drainage		10
Transposition of Great Vessels		6
Miscellaneous Congenital		15
Aortico-pulmonary Septal Defect		3
		392
Acquired		
Calcific Aortic Stenosis		24
Aneurysm Ascending Aorta		14
Mitral Stenosis		10
Mitral Insufficiency		6
Aortic Insufficiency		4
Myocardial Infarction		5
Aneurysm Left Ventricle	(4)	
Ventricular Septal Defect	(1)	
Sinus Valsalva Fistula		4
Myxoma		3
Left Atrium	(2)	
Right Atrium	(1)	
Traumatic		3
Aortic Ventricular Stab Wound	(2)	
Ruptured Papillary Muscle	(1)	
		73
TOTAL		465

GOOD RESULTS

Ventricular Septal Defects: This lesion was the commonest indication for open heart surgery in this series. Among 164 patients an over-all mortality of 18 per cent occurred. A number of factors determined survival in these patients but the most important were the age of the

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‡ From the Cora and Webb Mading Department of Surgery, Baylor University College of Medicine, and the Texas Children's, Methodist, Veterans Administration, and Jefferson Davis Hospitals, Houston, Texas.

patient and severity of pulmonary vascular changes. Thus, in patients less than 2 years of age there was an operative mortality of 40 per cent. In spite of the apparently prohibitive mortality in infants, operation is frequently justified as a salvage procedure and the fact that it was successful in 60 per cent of cases makes operation justifiable in critical cases. For 100 patients between the ages of 2 and 15 years there were 7 deaths or a mortality of 7 per cent. Patients with severe pulmonary hypertension were operated upon but the presence of frank cyanosis and polycythemia were considered contraindications. In this type lesion known as Eisenmenger's complex the presence of severe right to left shunt precludes surgical correction at the present time.

Since no deaths occurred in patients with normal or moderately elevated pulmonary arterial pressure, almost all ventricular septal defects should be repaired. The presence of increased pulmonary vascular resistance is not necessary in selection of patients.

Atrial Septal Defects: Ostium Secundum Type. This is the commonest type of atrial septal defect and was the indication for operation in 90 patients. All 6 deaths in this series were in patients more than 25 years old and usually with findings of advanced cardiopulmonary disease. Selection of patients of this age must be done carefully, but the majority of patients less than 25 years old should be operated upon if a significant left to right intracardiac shunt is present.

Ostium Primum Type: Twenty patients with ostium primum defects were operated upon with 3 deaths. In this lesion which occurs low in the septum in close proximity to the mitral and tricuspid valves conduction disturbance may occur after operation in the form of A-V dissociation or complete heart block. This complication may detract from the result expected from complete anatomic repair of the defect. Nevertheless operation in this group of patients is usually well tolerated and the long term results are gratifying.

Tetralogy of Fallot: Two types of tetralogy of Fallot were recognized with almost similar anatomic findings — one, the cyanotic type, and the other, the acyanotic type. The presence of cyanosis depends upon the degree of pulmonary stenosis and overriding of the dextroposed aorta. In the acyanotic or minimally cyanosed patient with tetralogy of Fallot results are comparable to results in isolated ventricular septal defect. With patients exhibiting severe cyanosis and diminutive pulmonary artery the ultimate result of operation may be striking but the immediate operative mortality was approximately 40 per cent. In very small infants in critical condition from cyanotic spells the anastomotic procedures of Blalock and Potts offer good palliative relief.

Aortic and Subaortic Stenosis, Congenital: Risk of operation in this lesion is low as evidenced by a series of 20 consecutive patients without a postoperative death. Occasional mild aortic regurgitation follows valvulotomy, but in general the left ventricular strain is relieved by surgical treatment. The youngest patient was 4 weeks of age and an excellent result was obtained.

Pulmonic Valvular and Infundibular Stenosis: Excellent results are obtained with open heart surgery for these lesions. For infundibular stenosis resection of the obstructing portion of the outflow tract is often sufficient to remove the gradient between ventricular cavity and pulmonary artery. In some instances enlargement of the outflow tract was achieved with a patch of compressed polyvinyl sponge sutured into the outflow tract as a "gore." Most cases of isolated valvular stenosis may be treated by closed technics of valvulotomy, but if the result is unsatisfactory, then open surgery is indicated. Among the 22 patients operated upon for pulmonic stenosis there was one death.

Total Anomalous Pulmonary Venous Drainage: This lesion, although rare, is being recognized with increasing frequency.

A total of 10 patients have been operated upon with this anomaly with 7 successful cases and 3 deaths in extremely critical patients with complicating features making any form of surgical attack extremely risky. Results of complete correction of this anomaly are highly satisfactory.

Aortico-Pulmonary Septal Defect: This relatively rare defect was encountered in 3 patients with complete repair by division and suture during cardiopulmonary bypass. All 3 patients survived operation without complication. Previous to open cardiac technics treatment of this lesion by closed technics carried a high operative risk, but correction may now be accomplished with excellent results.

Aortic Valvular Stenosis, Calcific: Although the pathologic nature of calcific aortic stenosis prevents precise restoration of valvular function, the results of operation in 24 patients with this lesion have been encouraging. Reduction of the gradient across the aortic valve relieves left ventricular strain with remarkable improvement in cardiac function in most instances. The operation is indicated in patients with aortic stenosis producing angina, recurrent syncope, or pulmonary edema.

Mitral Stenosis: An excellent view of the mitral valve may be obtained by a right sided approach opening the left atrium inside of the pericardium. Division of the commissures under direct vision permits accurate repair of the mitral stenosis and control of thrombi and embolism from the left atrium. This technic was used in 10 patients all of whom had previous closed commissurotomy. The procedure which at present is reserved only for the recurrent lesions may subsequently be used for primary operations.

Ventricular Aneurysm: All 4 patients submitted to operation for ventricular aneurysm following myocardial infarction survived operation with a good functional result. Complete excision of the aneurysm with ventriculoplasty was demonstrated to improve cardiac output by cardiac catheterization after operation. Operation may be performed within the first few months after infarction.

Sinus of Valsalva Fistula: This relatively rare condition may be completely corrected by right ventriculotomy and suture of the ventricular opening of the sinus fistula. All 4 patients survived operation with satisfactory results although 2 had controlled aortic regurgitation after operation.

Cardiac Myxoma: Although the clinical diagnosis of this lesion was difficult, surgical treatment was successful in 3 cases. In 2 cases of left atrial myxoma the diagnosis was established at surgical exploration for possible mitral stenosis. Right atrial myxoma was diagnosed in one patient after cardiac catheterization. No recurrence of these lesions has been noted.

Traumatic Lesions: Stab wounds or blunt injury may produce acquired septal defects or ruptured valves which require surgical treatment. Results are usually excellent with restoration of normal cardiac function.

FAIR RESULTS

Atrio-Ventricularis Communis: This complicated anomaly involves not only the atrial and ventricular septa but also is associated with clefts and extensive maldevelopments of the tricuspid and mitral valves. Often the lesion accompanies other congenital anomalies including Mongolism. In our series of 13 cases 7 deaths occurred, 5 of which were infants less than 2 years of age. In some instances this lesion is virtually incorrectible but in many a satisfactory repair may be obtained using a prosthesis in the septal repair.

Aortic Insufficiency: Direct procedures upon the valve itself are designed to repair the valve leaflets or reduce the size of the aortic annulus or both. Direct repair of the regurgitant valve was successful in only one out of four patients. Introduction of suitable valve substitutes may subsequently improve the outlook for these patients.

Mitral Insufficiency: Certain types of mitral insufficiency in which the leaflets

are intact and relatively supple are amenable to surgical correction. Reduction in size of the annulus and restoration of valvular competence may be accomplished by sutures placed across the commissures. Success of this procedure depends upon the pathologic condition of the valve which can only be ascertained at cardiotomy. In our cases we encountered severe calcification, ruptured papillary muscles, and severe fibrosis and contraction of leaflets obviating restoration of valve function and accounting for ultimate death of all patients. Nevertheless valvuloplasty under direct vision should provide relief in favorable cases.

POOR RESULTS

Transposition of Great Vessels: This complicated anomaly produces high mortality in infants from anoxemia and cardiac failure. Total surgical correction using the pump oxygenator has not been successful. Attempts at transposing either the venous return or the arterial outflow of the heart have led to death of the patient. At present only palliative procedures such as creation of an interatrial defect or transposing the right pulmonary veins and inferior vena cava are justified.

Miscellaneous Congenital Conditions: Mitral atresia, single ventricle with rudimentary outflow chamber, tricuspid atresia, truncus arteriosus, Ebstein's disease.

SUMMARY

Development of the pump oxygenator for temporary cardiopulmonary bypass has increased the scope of cardiovascular surgery. Among 465 operations using the pump oxygenator 392 were for congenital and 73 for acquired lesions. As pioneering experience with open heart surgery increases, the efficacy of direct operation in certain types of lesion may only be determined by close scrutiny of the results. Best results may be expected with ventricular septal defect, atrial septal defect, tetralogy of Fallot, aortic stenosis, pulmonary stenosis, anomalous pulmonary venous drainage, mitral stenosis, ventricular aneurysm and several other less common conditions.

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URETHRAL STRICTURE: CURRENT CONCEPTS IN MANAGEMENT *

E. C. ST. MARTIN, M. D.
J. H. CAMPBELL, M. D.
C. M. PASQUIER, JR., M. D.
Shreveport

Urethral strictures have been a problem to man, through the ages, being recorded even in the Hindoo writings of 600 B. C. With the outbreak of the first serious epidemic of gonorrhea in 1520 A. D., history records for the first time the serious difficulties encountered in their management. In the nineteenth century, definite improvements were developed: filiforms and followers, the urethrotome for internal urethrotomy. Whereas these things helped, the results still lacked much to be desired. To be sure, the basic treatment has been and is still physical dilatation. To accept this therapy alone and to fail to envision improved methods of management would be stagnation of medical science at its worst. On the other hand, has progress been made in the past decade? To answer this "posed" question has stimulated the following report.

The term *stricture*, herein, is defined as an abnormal narrowing of a canal, duct, or passage, either from cicatricial contraction or the deposit of abnormal tissue. In the urethra, it can occur singly and in multiple, from the external urethral orifice to and inclusive of the internal urethral orifice (bladder neck). It can be congenital or acquired. If congenital, it is smooth, and concentric; whereas the opening in the acquired stricture is often

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, May 7, 1958, in Shreveport.

ragged, eccentric and tortuous. All strictures of the urethra show proliferation of fibroblasts in the tunica propria, the layer of tissue just beneath the urethral mucosa. If the lesion progresses, fibroblasts replace the elastic tissue and smooth muscle of the tunica propria, and in extreme cases fibroblastic tissue may also replace the corpus spongiosum and the urethral mucosa.[1]

CONGENITAL STRICTURE

The congenital stricture is notably situated at the meatus, penoscrotal junction, and bladder neck. The commonly accepted practice today, of circumcision in the newborn male should be accompanied by careful inspection with simultaneous correction of the small meatus. Categorically, the small meatus is frequently present in the female though not as frequent as in the male. Within the past year, two young female children have been seen in urinary retention with no other explanation than a meatal stricture. Contracture of the vesical neck is essentially a congenital abnormality yet may also result from the fibrosis secondary to chronic infection. This one facet of obstructive uropathy alone is so common and so important that it ranks first, today, in the urological subjects of congenital origin that are publicized or discussed. It is worth while to mention, at this point, the development of the Bradford Young operation in 1953.[2] Here the obstructive tissue is resected and the vesical outlet is enlarged by the interposition of a flap of bladder musculature. This has proved to be one of the most valuable surgical urological procedures yet described. Again it is noted that bladder neck contracture occurs as commonly in the female as in the male.

ACQUIRED STRICTURE

The acquired stricture is the result of infection or of trauma. Those due to inflammation are located in the penile urethra or in the bulbous urethra, near the membranoprostatic junction. Those secondary to trauma develop at any place in the urethra where injury has occurred. True, gonorrheal strictures are on the way out. It must be remembered, however, that no less than 66 per cent of strictures take fifteen or more years to develop,[3] so that the decrease in future gonorrheal strictures will be somewhat offset by a rise in the incidence from nonspecific urethritis, particularly the many difficult cases seen in World War II and in the Korean conflict. In addition, there will be a greater number of traumatic strictures subsequent to more frequent instrumentation.

DIAGNOSIS

Progressive diminution of the urinary stream, a forked stream, and the postурination dribbling of urine are typical symptoms. History of gonorrhea treated prior to sulfonamide or antibiotic therapy and the history of a straddle injury to the perineum are significant. The recurrence or persistence of pyuria mandate the elimination of a stricture as the causative factor. Once suspected, proper investigation can be planned with minimal complications. Whereas the emergency presented by acute urinary retention, urinary extravasation, or periurethral abscess remains a troublesome situation.

MANAGEMENT

A critical review of the literature and of personal experiences has established the fact that much progress has been made in the over-all management of urethral stricture:

1. *Prophylaxis.* More adequate treatment of urethral infection with newer drugs has prevented stricture formation. Medication prior to and following instrumentation has lessened reactions.

2. *Improved analgesia.* There has been the development of safer agents for office use, notably amethone, pyribenzamine and trilene. Ease of instrumentation will bring the patient back; excessive trauma creates failure to return with the serious complications an eventuality.

3. *Improved diagnostic studies.* Urethrograms are most helpful in the complete evaluation of the stricture problem and are easily obtained by injecting water soluble radiopaque media into the urethra. Tixokon is safe and makes excellent urethrograms.[4]

Calibration of the urethra can only be done accurately with Otis bulbs. This creates a "wash board sensation" as the bulb is withdrawn. Emmett (1953) has found good use for this in applying the urethotome to the tight urethra (26 F) before doing a transurethral resection of the prostate. He thereby reduced the incidence of postoperative strictures to 1 per cent [5] as compared to 12 per cent reported in other series.[6]

Excretory urograms are also indicated for full evaluation of the difficult stricture. Over one-third show evidence of upper tract disease, but less than 15 percent of these have symptoms.

4. *Improved instruments.* Filiforms remain the safest means of dilatation. They are now made better, stronger, and more diversified. The woven silk (Phillips) follower has reduced the pain of dilatation considerably and is ideal for the tortuous urethra secondary to tear in the fracture-dislocation of the pubis.

The Council catheter guide has been developed and is ideal for introducing a catheter behind a filiform, minimizing the distinct danger of a catheter guide.

Sounds for infants have been developed with a curve more comparable to the normal anatomy of this age.

5. *Improved operations for complicated cases.* Difficult strictures associated with tortuous or false passages, dense scar tissue, and draining perineal fistulae have presented a real problem over the years. Treatment has been repeated, frequent dilatations after internal or external urethrotomy, and at best has been inadequate. There were no significant improved innovations aimed at "curing" troublesome strictures until the recent past. The following procedures have definitely decreased the frequency for subsequent instrumentation and are indeed worthy of your consideration :

(a). *Resection of urethra with re-anastomosis (Lich, 1951 [8]).* This is ideal for a stricture less than one and one half inches in length, located in the pendulous urethra. Actually this procedure was tried and discarded at the turn of the century because of infection. Today antibiotics eliminate this cause of failure.

(b). *Transurethral excision of strictures with the small resectoscope (Angle, (1952 [9]).* This has application in a few select cases where false passages can be converted into a common channel. It is highly technical.

(c). *Eradication of stricture by conversion to hypospadias with subsequent repair (Johansen-Dennis Browne, 1953 [10]), (Cecil, 1956 [11]).* This is applicable along the entire anterior urethra except the bulbomembranous position. It is ideal in the "water pot" perineum due to multiple fistulae.

(d). *Transurethral injection of cortisone into stricture (Lyons 1955 [12]).* The scar tissue is softened, facilitating more effective and less frequent dilatations. This is particularly useful in the stricture located at the bulbomembranous area where open surgery would endanger the external urethral sphincter. The fibrotic external meatus also lends itself readily to injection.

CASE REPORTS

Case No. 1—J. C. M., forty-eight year old white male, first seen in 1952, with history of urethral stricture of many years duration, approximately twenty. He had had repeated urethral dilatations every ten days to two weeks. Ten years ago the patient developed a false passage making instrumentation difficult. He had been treated by numerous urologists over the country. His problem was that of stricture plus bladder neck obstruction. This was managed by transurethral resection of the false passage and bladder neck. Patient is now able to go as long as four to five months between dilatations.

Case No. 2—R. W., seventy-three year old colored male, first seen in 1954, in acute urinary retention due to dense urethral stricture. Suprapubic cystotomy was necessary. Perineal urethrotomy with incision of the stricture under vision was done two weeks later. He was then managed by periodic dilatations with filiforms and followers for the next two years, then he did not return for ten months, at which time it was impossible to get a filiform through the urethra. A difficult perineal urethrotomy was done as well as transurethral resection of a progressive bladder neck obstruction. The patient then developed a marked re-stricture of the urethra. This was now managed by resection of the strictured area with primary anastomosis of the severed ends. Patient

now has negative urine and is dilated with ease through a 26 French.

Case No. 3—W. B., thirty-seven year old colored male, was first seen in 1952, with periurethral abscess secondary to urethral stricture. He was dilated with filiforms and followers periodically for the next two years. He did not return for two years, at which time it was impossible to get any instrument through the urethra. KUB showed multiple stones in the right kidney and excretory urograms revealed bilateral, chronic pyelonephritis with hydronephrosis. He also had multiple draining perineal fistulae, the so called "water-pot" perineum. A first stage Johansen-Dennis Browne procedure was done as well as instituting drainage by suprapubic cystotomy. This patient's general condition improved as well as the functional and anatomical appearance of the upper urinary tract. Five months later a second stage Johansen-Dennis Browne procedure was done.

SUMMARY

The mandates in management of urethral strictures have been in the past, and are, today, the same: asepsis, avoidance of excessive pain and trauma, and adequate follow-up. In the patient with acute urinary retention and impassable stricture, it is infinitely better to sedate the patient and either drain his bladder suprapubically by trochar cystotomy or aspiration needle or to send him to someone with more experience, than to ram an instrument recklessly through the urethral obstruction. Under general or spinal anesthesia, it may become possible to traverse the stricture, then to dilate it to the maximum without undue trauma.

Should the patient complain that his urinary stream is only improved for a few days after dilatation of the stricture and should a No. 16 French instrument pass and deliver significant residual urine, there is concomittant bladder neck obstruction necessitating corrective surgery in itself. This can be a pitfall to adequate management if not recognized.

Should difficulty persist in getting small instruments through the urethra and where the interval between dilatations cannot be extended, a corrective type of surgical procedure should be fitted to the particular problem.

CONCLUSION

Great strides have been made in recent years in the management of urethral strictures. Much needed attention has been directed to the frequency, early detection and adequate treatment of congenital uropathy in the urethra. The dim view of the past "once a stricture, always a stricture" has definitely been modified or changed. Many urological cripples due to complicated urethral strictures can now look to a urinary tract free of infection, free of obstruction and not dependent upon frequent, painful dilatations.

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DISCUSSION

Dr. Harry Q. Gahagan (Alexandria): I have learned to expect good informative papers from Dr. St. Martin and his Associates. This paper today is no exception and I am sure we have all benefited from it.

My remarks will be confined to strictures associated with severance of the membranous urethra which often occurs with fractures of the pelvis. This injury can result in one of our most difficult strictures if it is improperly handled. Anyone doing accident work will be faced with this problem sooner or later.

An immediate suprapubic cystostomy should be done. By passing one sound through the penile urethra and another transvesically through the prostatic urethra, the severed ends can be aligned and the penile sound can be passed up into the

bladder. The butt end of a plain catheter can be slipped snugly over the tip of this sound and withdrawn through the entire length of the urethra. To this plain catheter a #24F Foley catheter with a 30 cc. bag is tied and pulled through the penile urethra up into the bladder. The bag of this catheter is inflated and gentle traction is maintained on the catheter by means of a rubber band taped to the lower inner thigh. Thereby the catheter not only maintains alignment of the severed ends but the traction also holds the ends in close approximation so healing takes place with minimal scar formation.

Several of my patients handled in this fashion are seen only once or twice yearly and a generous size sound can be passed without difficulty.

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HOME ACCIDENT PROGRAMS *

HAROLD B. LEVY, M. D.
Shreveport

An increasing awareness of the importance of accidents as a leading cause of mortality and morbidity has alerted the medical profession into a concerted effort directed at reducing these appalling statistics. The continuing strides in the eradication of infectious diseases, along with the marked improvement in general sanitation has only served to emphasize the proportionate increase in accidental deaths especially in children. Table 1 illustrates strikingly how accidents claim more fatalities than the next five leading causes of death in this age group. Our modern machine-age civilization, growing more complex with each passing year, serves notice that this problem will be with us with increasing importance in the future. However, lest one think that the chief hazards lie in the outside world, evidence is at hand to show that a marked preponderance of these unfortunate occurrences take place in the home (Table 2). The reduction in the shocking total of traffic accidents is being considered by many experts in the field of automotive and highway engineering. The problem of mishaps about the home must justifiably be considered within the realm of medical and public health responsibility.

As with any other medical problem requiring scientific investigation, any reduction in the number of home accidents will require first an evaluation as to etiology, followed by an application of those factors into a rational approach toward their prevention and management. There is no mysterious virus or complex biochemical metabolic disorder responsible in this instance. The basic elements are ignorance and carelessness, coupled with a proneness of certain age groups to be more likely to react unfavorably with the stress of their environment. Any effective program in home accident prevention must make use of these facts and attack the source accordingly.

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, May 7, 1958, in Shreveport.

TABLE 1
CAUSES OF DEATH AMONG CHILDREN
(ages 1-14)

Accidents	10,991	Nephritis	501
Cancer	3,916	Meningitis (nonmeningococcal)	502
Pneumonia	2,899	Heart Disease	437
Congenital malformations	2,864	Bronchitis	394
Gastritis, enteritis, colitis	672	Vascular lesions	383

From: **Accident Facts**, 1958 Edition, National Safety Council.

TABLE 2
ACCIDENTAL DEATHS IN 1957

Age Groups	0-4 yrs.	5-14 yrs.	15-24 yrs.	25-44 yrs.	45-64 yrs.	65 yrs. & over
All Accidents	8,350	6,300	13,150	20,600	19,400	27,000
Home Accidents	3,800	1,300	900	2,100	3,300	14,600

From: **Accident Facts**, 1958 Edition, National Safety Council.

It is obvious that accidents about the home create their greatest havoc among the very young and the very old (Table 3). Those who are charged with the responsibility of caring for these individuals must be made aware of their peculiar susceptibilities and increase their vigilance accordingly. The number of infants and helpless senior citizens who perish as their home burns down about them should certainly alert those who care that these persons should never be left alone in the home. The hazards of falls to this group should call for a careful evaluation of their environment and the removal of all possible sources of difficulties. Recognition must be given to the normal growth and developmental characteristics of the child, especially in the 1 to 4 year old stage, as normal healthy inquisitiveness, coupled with hand-to-mouth activity, also normal, makes the toddlers a more likely candidate for poisoning, strangulation, or drowning.

NATIONAL PROGRAMS

The development of an organized program directed at the reduction of home accidents has already begun on a national, state, and local level throughout the United States. The American Academy of Pediatrics, recognizing the importance of accidents as the leading killer of children after the neonatal period, in 1950, established its Committee on Accident Prevention. To date the Committee activities have been primarily concerned with poisoning in children, as evidenced by the encouragement and establishment of numerous poison control centers throughout the country. In 1955, it published the first edition of "Accidental Poisoning in Childhood," listing more than 20,000 proprietary preparations and their toxic constituents.[1] Outstanding cooperation has been obtained with the American Medical Association's Committee on Toxicology and the American Public Health Association's Subcommittee on Chemical Poisons, resulting in the excellent Symposium on Childhood Poisons presented in joint session at the Chicago meeting in 1956.[2] The National Safety Council has been an invaluable aid, as its annual booklet entitled "Accident Facts" [3] has become the bible of accident prevention. Outstanding contributions have been made on a national level by other nonmedical organizations such as the National Board of Fire Underwriters, the Chemical Specialties Manufacturer's Association, the American Academy of Forensic Sciences, the Association of Casualty and Surety Companies, and many others. The large national insurance companies have published many excellent and attractive educational pamphlets which have been of great assistance. It is especially gratifying to note that the outstanding project for this year adopted by the Boy Scouts of America is entitled "Safety Good Turn-1958".[4] Those of us who are doing work in Scouting feel certain that considerable good will be derived from the actvities of these boys in the field of home safety.

STATE PROGRAMS

On a state level, much is being done to

TABLE 3
DEATHS FROM HOME ACCIDENTS BY TYPE AND AGE, 1957

Type of Accident	ALL AGES	0 to 4 Years	5 to 14 Years	15 to 24 Years	25 to 44 Years	45 to 64 Years	65 Years and Over
Total	**28,000**	**5,800**	**1,300**	**900**	**2,100**	**3,300**	**14,600**
Falls	13,400	400	90	60	250	1,100	11,500
Fire burns, and other deaths associated with fires	5,400	1,050	550	300	850	1,100	1,550
Mechanical suffocation	1,400	1,250	40	20	20	40	30
Firearms	1,150	80	320	200	200	200	150
Poisonings, solid or liquid	1,200	350	40	60	300	350	100
Poison gases	900	70	60	100	200	270	200
Other	4,550	2,600	200	160	280	240	1,070

Source: Estimates by National Safety Council, based on data from the National Office of Vital Statistics and state health departments.

From: **Accident Facts**, 1958 Edition, National Safety Council.

bring the problems of accident prevention closer home, as it pertains to each geographical locality. As mentioned previously, the Academy of Pediatrics has organized its State Chapters to take the lead in this field. Here in Louisiana we have been fortunate in having an active and devoted group, headed by Dr. Bruce Everist of Ruston. As in the majority of the states, the basic theme has been along the lines of the development of poison control centers and allied activities, with such a center soon to open in New Orleans in connection with the L.S.U. School of Medicine. Other states have expanded their programs into different fields. The State Department of Health in Minnesota recently conducted a survey of home accidents throughout the state, making a valuable contribution along these lines.[5] Another outstanding example has been developed in New Jersey, where a joint effort with the State Department of Health, Congress of Parent Teacher Associations, State Safety Council, and the State Medical Society has completed an excellent child safety project through the use of a carefully devised multiple-choice questionnaire.[6] The 30,000 replies obtained will bring benefits far beyond the actual borders of the state concerned with the survey, just as we hope our efforts here in Louisiana will reap a broader harvest. Other organizations in Louisiana have begun to give evidence of an interest in this field. The recent convention in Alexandria of the Public Health Association devoted its entire program to accident prevention, and the annual meeting of the Louisiana Safety Association has included for the past several years a special section on home safety.

LOCAL PROGRAMS

The local effects of these national and state-wide efforts have produced a number of favorable results, varying again with the geographical locality and the size of the community, as well as the interest of its individual citizens. The New York City Department of Health has recently set up a Task Force on Accident Prevention, which in great part has concentrated on home safety.[7] Another excellent program was developed in New Bedford, Massachusetts.[8] Under a grant from the Hood Dairy Foundation, a local advisory committee was formed consisting of physicians, druggists, legislators, clergymen, school officials, and other interested individuals. The membership was changed from time to time, and functioned as a forum for discussion of the general problems of accident causation. Here in Shreveport, through the cooperation of the local Safety Council, we have developed a program for education of baby sitters, an exhibit at the State Fair, an annual forum with the Health Council, numerous television programs, and a motion picture on home safety which received a citation from the National Safety Council. This fall we have plans for a city-wide campaign in cooperation with the Boy Scouts in their Safety Good Turn. The Ruston survey under Dr. Everist is another excellent example of what can be accomplished locally, regardless of the size of the community.

INDIVIDUAL RESPONSIBILITY

Throughout all this discussion of home accident programs conducted on a national, state and local level, it must be obvious that no such program will succeed beyond the efforts of the individual or individuals whose interest and devotion afford the prime motive factor in the campaign. The physician himself must therefore recognize and accept the responsibility which is the natural result of his unique position in society. No other person commands the respect of the individual patient or parent, and no one can better bring the lesson of safe living home to that patient or parent than the family physician. Here is an opportunity for public service and preventive medicine unparalleled in medical practice. For as was stated before, one is not dealing with something unknown—the accumulated facts are at hand from many years' experience.

One needs no expensive electronic microscope or cobalt machine to develop a safety vaccine—it is already here to be

used. It can be administered for the children, along with feeding instructions, habit development suggestions, and other bits of advice given on regular visits. This vaccine has the advantage of being painless, and yet may be more life-saving than the routine of D-P-T injections now given. If allowed to paraphrase one of the pioneers in this field, Dr. Harry Dietrich,[9] we might consider this vaccine also as "D-P-T"—Discipline, Prediction and Time. Discipline is that way of life in which the family, instructed and guided by their physician, develops an everyday manner of living governed by common sense and good habits in which safety becomes an everyday integral factor. Prediction involves the use of all the statistics and facts previously mentioned, taking special cognizence of the hazards involving those specific age groups which show a predilection to certain types of accidents. Time is the third—and perhaps the most important unit. If the physician can divert the parents away from unnecessary worrying concerning relatively unimportant things such as premature toilet training, competition in growth and development, the sequence of eruption of teeth, and countless other imaginary modern problems, then perhaps some of this emotional energy and precious time can be spent in consideration of a much more valid and important matter of concern—accident prevention. The physician himself must take the necessary time to give preventive instruction at each regular visit by the parent and to notice hazards about the home environment while he is making home visits—the unlit stairs, the slippery rug, the open electrical socket, and other dangers he might notice. When prescribing any type of medication to any member of the family, he must warn of its potential dangers to children and insist that it be kept locked up, not just supposedly hidden away.

Just as the development of home accident programs can be traced from the national through the state and local level down to the individual physician, so must it be traced in a reciprocal manner in order to be proper and complete. Each of these well-organized efforts had its inception in the mind of a devoted and energetic physician. The prestige and backing of these important national organizations is now available to those who would take advantage of them. A pebble cast in the water in some small Louisiana town might in ever-widening ripples soon become an important drive of national scope. The ideas of some Louisiana physician might be developed and expanded into a program that would benefit the lives of many other individuals far removed from his own patients. This is an opportunity indeed rare in the private practice of medicine—but it is more than just an opportunity, it is a pressing moral obligation.

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CAUSE OF DEATH IN SURGERY OF THE NEWBORN;

Emphasis on Prevention of Aspiration *

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During the last three years on the L.S.U. Pediatric Surgery Service of the Charity Hospital of New Orleans, there have been 74 patients under one month of age, and 28 of these infants died in the hospital. This small group, amounting to less than 6 per cent of the total admissions, accounted for over 60 per cent of all the deaths on the service during this period.

This study includes all infants who were operated on or diagnosed as having a surgical condition on or before the thirtieth day of postnatal life. Of the 74 patients in this series, 12 were not operated on. Some were not considered suitable candidates for surgery; others died before the general condition could be improved sufficiently to consider operation; and in some, surgery was not necessary or was postponed until a later date.

The entire group of infants will be considered before discussing the causes of death in those who succumbed.

The conditions occurring in these patients may be divided into five categories:

A. Early Congenital Anomalies—abnormalities beginning early in fetal life and requiring surgery early in the newborn period;

B. Late Congenital Anomalies — those originating late in fetal life and requiring treatment late in the neonatal period (in this group are included pyloric stenosis and Hirschsprung's disease, in which the time of origin is not known);

C. Non-Congenital Emergencies;

D. Trauma;

E. Miscellaneous.

EARLY CONGENITAL ANOMALIES

In the 37 patients with early congenital anomalies the average age was 4 days and the mortality 57 per cent. (Table 1.) Over half the deaths were due to pulmonary complications—atelectasis and pneumonitis. The anomalies in this group were congenital obstructive lesions of the alimentary tract (atresia or stenosis of the esophagus and intestine, imperforate anus, and malrotation), perforation of the stomach as a result of an abnormality in development, omphalocele, Siamese twins, and multicystic kidney presenting as an abdominal mass.

LATE CONGENITAL ANOMALIES

There were no deaths in the 17 patients with late congenital anomalies, which were

TABLE 1
EARLY CONGENITAL ANOMALIES
57 PER CENT MORTALITY

Anomaly	Patients	Premature	Other Anomalies Major	Other Anomalies Minor	Deaths	Cause of Death Pulmonary	Cause of Death Multiple Anomalies	Cause of Death Other
Esophageal Atresia	10	5	3	2	7	7		
Duodenal Obstruction	7	5	3	2	4	3	1	
Jejunal Obstruction	3	3			3	1		2
Colon Obstruction	1				0			
Imperforate Anus	3				0			
Stomach Perforation	2		1		2		1	1
Malrotation	1	1			1	1		
Omphalocele	6	3	3	3	3		2	1
Siamese Twins	2	2	1		1		1	
Multicystic Kidney	2				0			
Total	37	19	11	7	21	12	5	4

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pyloric stenosis, incarcerated inguinal hernia, and Hirschsprung's disease. (Table 2.) The average age of these infants was 23 days.

NON-CONGENITAL EMERGENCIES

Non-congenital emergencies early in the neonatal period accounted for 6 patients with 100 per cent mortality. (Table 3.) In this group are (1) two infants with paralytic ileus due to sepsis, (2) a nine-day old, two-pound baby with a bleeding gastric ulcer, and (3) three two-pound infants with a condition we have labeled constipation-dehydration. These dehydrated patients apparently had insufficient enzymes to digest the small milk feedings they were given, and they died of intestinal obstruction produced by plugs of inspissated milk curds throughout the whole intestinal tract. At autopsy there was increased fibrosis in the pancreas of one of these patients.

TRAUMA

All 3 patients treated for trauma survived. (Table 4.) These were (1) a three-week old baby with a large hematoma of the liver resulting from birth trauma, (2) a three-week old colored male with a gunshot wound of the abdomen, and (3) a male infant with a recto-urethral fistula resulting from cystoscopy and multiple catheterizations.

MISCELLANEOUS

The miscellaneous group (Table 5.) included (1) breast abscess, (2) negative exploratory laparotomy, (3) meconium constipation, (4) preauricular appendage, and (5) draining umbilicus. The only death in this group occurred in (6) a three-week old baby with a cystic hygroma of the axilla who developed diarrhea, then pneumonia, and finally died of viral hepatitis and *E. coli* septicemia thirteen days after operation.

CAUSE OF DEATH

The mortality of the entire group of 74 patients was 38 per cent (Table 6.) Of the 62 patients operated on, 22 died after surgery, a mortality of 35 per cent.

Table 7 lists the causes of death in the 28 patients who succumbed. Of the 25

TABLE 2
LATE CONGENITAL ANOMALIES
NO DEATHS

Anomaly	Patients	Premature	Other Anomalies	Comment
Pyloric Stenosis	12	3	1	1 Wound Infection 1 Incisional Hernia
Incarcerated Hernia	4	1		1 Exp. Lap. Obstruction
Hirschsprung's Disease	1			Not Operated
Total	17	4	1	

TABLE 3
NON-CONGENITAL NEONATAL EMERGENCIES
100 PER CENT MORTALITY

Condition	Patients	Premature	Operated	Cause of Death
Paralytic Ileus (Sepsis)	2		2	1 Fecal Fistula 1 Enterocolitis
Gastric Ulcer	1	1		1 Hemorrhagic Pneumonia
Constipation-Dehydration	3	3	1	1 Perforation Ileum 2 Intestinal Obstruction
Total	6	4	3	6

TABLE 4
TRAUMA
NO DEATHS

Condition	Patients	Operated	Comment
Hematoma Liver	1	1	Neonatal Shock
Gunshot Wound Abdomen	1	1	3 Perforations Ileum
Recto-urethral Fistula	1	1	2° cystoscopy
Total	3	3	

patients with congenital intestinal obstruction (including tracheoesophageal fistula) 15 died, and 12 of these deaths were due to pulmonary complications — atelectasis resulting from aspiration of saliva and respiratory tract secretions, or pneumonitis from aspiration of vomitus. Aspiration pneumonitis caused the death of 3 of these infants before surgery could be attempted.

Multiple anomalies incompatible with life accounted for 5 postoperative deaths and probably contributed to the death of at least 5 other infants who died primarily of pneumonitis. Only 2 patients survived surgery with major anomalies other than those for which they were operated.

The miscellaneous causes of death include (1) sclerema in a fullterm baby following repair of an omphalocoele, (2) two cases of malnutrition resulting from extensive small bowel resection, (3) the three cases of constipation - dehydration previously mentioned, and (4) four cases of infection —peritonitis following perforation of the stomach, bacteremia after resection of a cystic hygroma, and two cases of sepsis and paralytic ileus simulating intestinal obstruction.

DISCUSSION

In this series, the deaths due to multiple congenital anomalies were unavoidable in our present state of knowledge, and most of those due to miscellaneous causes were not preventable at the time the patients were seen. However, the largest group of deaths, those due to pulmonary complications, should be preventable.

The one most important factor in prevention of death from aspiration is early diagnosis and treatment of congenital obstructive lesions of the alimentary tract. (12 of the 13 pulmonary deaths occurred

TABLE 5
MISCELLANEOUS
9 PER CENT MORTALITY

Condition	Patients	Premature	Comment
Breast Abscess	5		Incision & Drainage
Negative Exp. Lap.	2		1 Possible Duodenal Obstruction 1 Possible Ruptured Liver
Meconium Constipation	1	1	Colon Obstruction
Preauricular Appendage	1		Excised
Draining Umbilicus	1		Possible Urachus Investigated
Cystic hygroma axilla	1		Died (Bacteremia)
Total	11	1	9 Operated

TABLE 6
NEONATAL SURGERY
38 PER CENT MORTALITY

Condition	Patients	Premature	Other Anomalies Major	Other Anomalies Minor	Operated	Deaths	P.O. Deaths
Early Congenital Anomalies	37	19	11	7	32	21	18
Late Congenital Anomalies	17	4	1		15	0	
Non-Congenital Emergencies	6	4			3	6	3
Trauma	3				3	0	
Miscellaneous	11	1			9	1	1
Total	74	28	12	7	62	28	22

TABLE 7
CAUSE OF DEATH

		Pulmonary	Multiple Anomalies	Other	Total
Early Congenital Anomalies	Operated	9	5	4	18
	Not Operated	3			3
Non-Congenital Emergencies	Operated			3	3
	Not Operated	1		2	3
Cystic Hygroma	Operated			1	1
Total		13	5	10	28

in this group of patients.) Any infant, particularly a premature one, who is difficult to resuscitate at birth or who exhibits intermittent cyanosis and excessive mucus early in the newborn period should be suspected of having atresia of the esophagus with tracheo-esophageal fistula until the diagnosis has been excluded by passing a catheter through the esophagus and into the stomach. And every newborn who vomits, particularly if the vomitus contains bile, should have an immediate x-ray of the abdomen to rule out congenital intestinal obstruction.

If tracheo-esophageal fistula with esophageal atresia is suspected because of inability to insert a naso-gastric tube, the diagnosis should be confirmed by fluoroscopy with lipiodol. The patient should immediately be placed in an atmosphere of high humidity, and the nose and mouth and pharynx kept clear of saliva and mucus by frequent suction. For this purpose, an intact #8 French catheter is used, and the suction machine carefully regulated at seven or eight pounds of negative pressure. (Stronger suction will cause bleeding from the mucous membranes.) The manipulation associated with the suctioning will stimulate the cough reflex (which is notably poor in these small patients). However, an attempt should be made to avoid gagging the baby with the catheter, for when these infants vomit, gastric juice is regurgitated directly into the trachea.

Once the diagnosis of intestinal obstruction is made, x-ray studies with contrast material are specifically contraindicated. The infant should be placed on his abdomen and immediate decompression of the gastrointestinal tract undertaken. In these small patients the ordinary urethral catheter is superior to the regular Levine tube. The catheter, with extra holes cut to allow better drainage, is more easily kept open, since it is shorter than the Levine tube. It must be irrigated frequently, however, to prevent plugging with mucus.

Gravity drainage and intermittent aspiration of the catheter with a syringe are preferable to strong constant suction, but very gentle constant suction may be obtained by inserting a #25 needle into the tubing connecting the catheter to the suction machine.

The importance of adequate preoperative decompression of the gastrointestinal tract cannot be over-emphasized. In the present series, there was not a single instance of aspiration on the operating table or in the recovery room, but patients with inadequate decompression have been known literally to drown in vomitus during this critical period.

Frequent suction of the nasopharynx is almost as important in intestinal obstruction as in tracheo-esophageal fistula. Newborn infants have poor cough reflexes and may aspirate the increased secretions resulting from the irritation of the naso-gastric tube.

Additional preoperative measures for both tracheo-esophageal fistula and intestinal obstruction include minimal but adequate hydration, transfusion if necessary, antibiotics, and administration of an adequate drying agent before induction of anaesthesia. The smaller the infant, the more important is this last measure.

Anesthetic and surgical technique will not be discussed, except to emphasize gentle handling of tissue by both surgeon and anesthetist and to urge complete decompression of the small bowel before closing the abdomen.

Postoperatively, all these patients continue to require an atmosphere of high humidity, suction of the nasopharynx, and the prone position. If the baby is not placed on a pillow, there is no danger of suffocation. In addition, in the infant with intestinal obstruction the decompression should be continued until normal function of the gastrointestinal tract has been established.

Even with the most expert nursing care, however, these tiny patients, who are critically ill, who have undergone major surgery, and who have poor gag and cough reflexes, will often aspirate—usually with disastrous results. For this reason, the use of gastrostomy in congenital intestinal obstruction is recommended. A #16 or #18 mushroom catheter can be sutured

into the stomach at the time of laparotomy with minimal increase in operating time, and this large tube will provide much more adequate drainage than can be obtained with the #8 or #10 naso-gastric tube. Furthermore, it eliminates the increased secretion due to irritation of the catheter in the nose, pharynx and esophagus. It can be used throughout the period of postoperative ileus and during the week or ten days until effective peristalsis is established in the dilated and hypertrophied segment proximal to the obstruction. Later, feedings may be administered through the tube if desired. Removal of the gastrostomy tube, usually two to three weeks after operation, is quite simple and uncomplicated.

It should be noted that the gastrostomy is recommended only for congenital obstructive lesions below the pylorus. In tracheo-esophageal fistula, normal peristalsis is resumed early in the postoperative period, and gastrostomy is indicated only in the event of unsatisfactory esophageal anastomosis and is used for feeding, not decompression.

This use of gastrostomy in the postoperative newborn infant was suggested by Doctor James D. Rives, Professor and Head of the Department of Surgery of the Louisiana State University School of Medicine. It has been used in 3 patients with considerable simplification of the postoperative care and most gratifying results.

In adult patients, atelectasis or aspiration immediately raises the question of bronchoscopy or tracheostomy, but these procedures are usually contraindicated in infants. The respiratory passages of the newborn infant are so small that postoperative tracheal intubation of any kind is usually traumatic and productive of sufficient edema to seriously compromise the airway. In these patients, prevention of pulmonary complications is imperative, for attempts at curative measures may be fatal.

SUMMARY

The most frequent cause of death in 74 newborn surgical patients was aspiration of respiratory secretions and vomitus, resulting in atelectasis and pneumonitis, and occurring most often in congenital obstructive lesions of the alimentary tract. Early diagnosis and treatment, intermittent postoperative suction of the nasopharynx, and decompression of the gastrointestinal tract will aid in lowering the mortality rate in these infants.

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FERNING PROCESS AS NOTED IN CERVICAL SMEARS AND ITS RELATIONSHIP TO OVULATION AND PREGNANCY *

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Since Smith,[1] in 1855, first described the physical properties of cervical mucus, there has been considerable investigation of the physical, chemical, bacteriological, and physiological changes of this secretion. The description of the physical changes was first attributed to Seguy and Vimeux.[2] The quantitative studies were presented in 1944 by Viergiver and Pommerenke.[3] The latter correlated the volume and viscosity of cervical mucus with the basal body temperature. Cyclic changes in the endocervix and its glands have been studied histologically with variable results by several investigators, notably among them Papanicolaou, Traut, Marchetti, and Topkins.[4] Bacteriological and anti-agglutinating factors have been reported by Baxton and others.

It remained for Papanicolaou in his reports of 1945 [5] and 1948 to describe a certain type of crystallization when cervical mucus was obtained during certain phases of the menstrual cycle and allowed to dry on a glass slide. This peculiar crystallization phenomenon has been variously termed arborization, palming, or

* Presented at the Seventy-eighth Annual Meeting of the Louisiana State Medical Society, May 6, 1958, in Shreveport.

ferning. Landerstrom-Land [6] and Zondek [7] have studied this phenomenon and have concluded that it is due to mucin and sodium chloride. A peculiarity of this phenomenon is that it will only form in the presence of estrogen unopposed by progesterone. Progesterone inhibits this formation. In the normal menstrual cycle it is possible to reproduce the ferning phenomenon, even in the presence of progesterone, by giving large amounts of estrogen, but during pregnancy even very large doses have failed to do so. During pregnancy a special mechanism exists that inhibits the excretion of mucin containing electrolytes essential for ferning.

In the gynecologist's quest for more simple methods of determining estrogen activity, ovulation and early pregnancy detection, it was natural that studies of cervical mucus should be undertaken in the hope that it would reflect endocrine changes. Endometrial biopsies, estrogen, and pregnanediol determinations, vaginal smears, and temperature charts are of proven value, but the expense, availability, and time involved to obtain the desired results have curtailed their extensive use. Roland,[8] Zondek,[7] Forman,[9] and others have studied the fern test during the menstrual cycles of normal women and have shown in general, that the cervical mucus obtained in the premenstrual and postmenstrual phase contains abundant vaginal and cervical epithelial cells, leukocytes and mucus in patches or threads. There was no ferning. From D-8 through D-22, however, when the slide is allowed to dry, it crystallizes and forms a typical arborization pattern showing a fascinating pattern of flowers and leaves resembling fern or palm leaves. Campos de Paz [10] and Lewis have correlated this ferning with the penetrability of the sperm.

TECHNIQUE

The technique which I have employed in this study is as follows: A bivalve speculum is inserted into the vagina to expose the cervix. The cervix is wiped clean with cotton on a sponge holder. Cervical mucus is aspirated and immediately placed on a dry clean slide and dried by heat. It is read immediately after the examination of the patient is completed. It is not allowed to dry at room temperature and is not read later. These are important points because Campos de Paz has shown that humidity will influence the result. Also, the entire picture changes in several hours. (Figures 1 & 2)

In the interpretation of this test, I report the slide as negative if no areas of ferning are found on a routine exami-

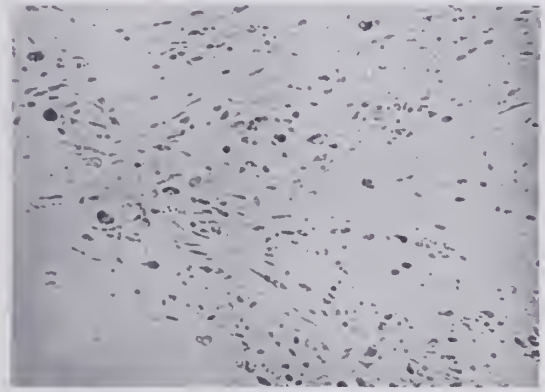


Figure 1.—Negative fern test.



Figure 2.—Positive fern test.

nation of the slide under low power magnification. If a slide is negative in the overall picture with but an isolated area of ferning it should be reported as showing a trace, and for purposes of interpretation bears the same significance as a negative slide. If the entire slide shows areas of early ferning it is reported as plus one, two, and three, up to the typical plus four picture of full-blown ferning.

Shanks [11] and several other investigators have questioned the result of Roland and Zondek. Because of their conflicting re-

TABLE 1
FERN TEST RESULTS IN 30 NORMAL GYN. PATIENTS

Menstrual Day Fern	1—7	8—10	11—22	D-22 Menses
	Neg. to trace	+2 to +4	+4	Neg. to trace

ports, I reviewed their results and technique and found that (1) the slides were dried in air and, (2) they were read several hours after they were obtained. Further, Shanks and others consider a trace of ferning as an argument against a negative test. I feel that this is a difference of interpretation.

RESULTS

Table 1 demonstrates my results in 30 normal menstruating women who were being treated for pathology other than menstrual irregularity. This represents well over 150 tests that were compiled by the skatter-graph method. Roland had compiled his results by testing the cervical mucus at definite intervals in the same women throughout the menstrual cycle. This is undoubtedly a more scientific approach but is hardly possible or practical in private patients. Nevertheless, my smears agree, in general, with the results of the above investigators. Smears taken shortly after the menses present a picture of cellular debris, leukocytes, and cervical cells. Shortly thereafter, traces of the ferning mechanism appear and gradually increase in intensity until at about D-10 the fully developed fern covers the entire slide. Conversely, on D-21, the ferning mechanism begins to diminish and is reconverted to the negative smear after D-22. Accordingly, I recommend that the test be run on D-10 and D-24. If a positive smear on D-10 is converted to negative by D-24, ovulation can be presumed because of the inhibiting influences of progesterone.

RESULTS IN PREGNANCY

Because of the lack of ferning in pregnancy, it should be a valuable test for early pregnancy. Roland [8] claims 99 per cent accuracy, but fails to state how many cases were early pregnant. Zondek [12] ran tests on 226 pregnant women in the first trimester. Eighty-eight per cent were completely negative, 11.5 per cent showed a +1 ("trace" in my series) ferning. An interesting corrollary of this study is that of the 26 pregnancies that showed slight ferning, 15 pregnancies terminated unfavorably (roughly 58 per cent). His conclusion was that such a test signifies placental insufficiency and that the fern test may indicate the prognosis in a given pregnancy. This study was primarily done to test the validity of this hypothesis.

TABLE 2
RESULTS IN 85 PATIENTS FIRST SEEN UNDER 12 WKS.

Fern Test	No. of Patients	%Series	%Tests
Negative	46	54.1	77.9
Trace	13	15.3	22.0
Not done	26	30.5	

Of 59 patients with fern tests, 40 were in the first 8 weeks

Table 2 shows that in the last 85 pregnancies seen in the first twelve weeks, fern tests were done on 70 per cent of the cases. Roughly 22 per cent of these showed a trace of ferning. Table 3 shows

TABLE 3
PATIENTS WITH POSITIVE FERN
13 PATIENTS

Follow-up	
Delivered	4
Preg. (Past 16 Weeks)	7
Preg. (Still Early)	2
Abortion	0
Ectopic Gestation	0
Fetal low	0

that there was no fetal loss in the 13 patients who showed a trace of ferning. On the other hand, table 4 shows a 13

TABLE 4
PATIENTS WITH NEGATIVE FERN
46 PATIENTS

Follow-up		
Delivered	16	
Preg. (Past 16 weeks)	15	
Preg. (Still early)	5	
Lost track of	4	
Abortion (3 missed abort.)	6	
Ectopic Preg.	0	
Fetal loss	(6)	13.0%

per cent fetal loss in the group with negative tests. These results would cast serious doubt on the assumption of Zondek, that such a test bears a bad prognosis. However, an interesting finding shown in Table 5 is the return of the ferning phenomenon subsequent to the death of the fetus in the first 3 cases. This suggests that a test which was first negative and later becomes positive may signify a withdrawal of the pregnancy hormones.

Further study will have to be done. Conversely, however, several cases which have progressed uneventfully after a threatening episode, have continued to show a negative pattern.

STUDY OF STERILITY

The value of this test in the study of sterility problems has been well exemplified by Campos de Paz,[11] Furman,[10] and Lewis. Study of sperm penetrability by postcoital tests has shown that the mucus is far more penetrable during the +4 ferning stage. In a review of their work, I find that no mention is made of the viscosity of the mucus. In my own experience, I find that a strongly positive fern test may still be associated with a high viscosity and suggest that the viscosity of the mucus, which is essential for good penetrability, is not always perfectly correlated with a strongly positive fern. This would be expected since the fern test is usually strongly positive from about D-11 or D-12 through D-21, while the viscosity would be thin only for a shorter period of time. Temperature charts also show this strongly positive fern test both before and after ovulation.

ENDOMETRIAL STUDIES

Table 6 shows the correlation of the fern tests with the endometrial biopsies. Basal body temperature charts were available in 8 of these patients. There is a clinical and histological correlation in

TABLE 5
FETAL LOSS CASES (6)
CORRELATION OF FERN TESTS

	Weeks Preg.							
	6-8	9-10	11-12	12-16	18		Frog Test	
E.F.		Neg.	Tr.	+2			Neg. 16 wks.	Missed abortion
G.V.				Neg.	Neg.	+1	Neg. 20 wks.	Missed abortion
L.A.	Neg.	Neg.		+1	+1		Neg. 12 wks.	Missed abortion
C.M.	Neg.							Aborted (8 wks.)
R.L.	Neg.							Aborted (12 wks.)
S.C.		Neg.						Aborted (12 wks.)

TABLE 6

		Age	Menses Cycle	Days of Cycle and Results of Fern				Day of Endo. Biopsy	Types of Endometrium	Correlation with B.B.T.
			every							
1.	J.K.	31	20-28	19	+3	22	Neg.	28	Sec	
2.	B.B.	23	26-35	12	+3	16	Tr.	26	Sec	Yes
3.	R.B.	25	Irreg.	17	+4	24	Neg.	26	Sec	Yes
4.	C.F.	30	28-30	8	+4	22	Neg.	24	Sec	
5.	F.R.	34	26-28	12	+4	17	Tr.	26	Sec	Yes
6.	D.N.	24	28-30	10	+4	24	Tr.	26	Sec	
7.	B.T.	26	24-28	13	+4	22	Tr.	27	Sec	Yes
8.	S.T.	34	23-25	10	+4	19	Neg.	20	Sec	
9.	R.L.	28	24-28	14	+4	22	Tr.	25	Sec	Yes
10.	D.K.	18	Irreg.	15	+4	27	+3	28	Anovul.	Yes
11.	A.K.	23	21-30	9	+4	24	+3	24	Anovul.	Yes
12.	L.L.	19	28-30	16	+4	24	+1	24	Anovul.	
13.	E.T.	31	28-30	13	+4	28	+4	28	Sec	No
14.	E.C.	17	Irreg.	13	+4	20	Neg.		Pregnant	
15.	G.L.	45	23-24	10	+1	18	+3	18	Hyperplasia	
16.	E.W.	41	Amenorrhea 4 mo. Ferns				+4	120	Hyperplasia	
17.	N.L.	26	Amenorrhea 4 mo. Ferns				Tr.	120	Hyper. only few glands	

all but 1 of these patients.

The first 9 cases represent the change from a positive to a negative test in the premenstruum and correlate very well with the endometrial findings indicative of ovulation. It will be noted that the women with the shorter cycles usually show fern-ing earlier in the cycle and also revert to a negative pattern earlier.

The persistence of the positive test in cases 10 through 12 also correlated with the endometrial diagnosis of anovulatory menstruation. Case 12 probably represents a diminishing estrogen level in an anovulatory cycle, but is still a + 1 positive.

Case 13, however, was shown to have secretory endometrium in spite of continued ferning. The temperature chart also showed evidence of ovulation. This woman had a very thin peculiar mucus at all times that was almost of the viscosity of water. Her cervix had multiple large Naboth's cysts which may have masked the true picture. I have recently performed a conization on this cervix. This was the only case that failed to show correlation between the endometrium and the fern test in this series.

The persistence of the ferning mechanism in cases 15 and 16 suggests the absence of progesterone in the premenstruum in one case, and over the length of four months in the other. Endometrial studies in both cases showed hyperplasia.

The persistent trace of ferning in case 17 represents the effect of a low estrogen level secondary to ovarian failure. This 26 year old woman is an example of a case of Sheen's syndrome secondary to obstetrical shock. Her urinary estrogen levels have been persistently low.

OTHER USES OF TEST

Table 7 shows several other interesting cases of the use of the fern test in clinical practice. L.W. was a 28 year old female who had a history of irregular menses in the past, but had been regular for the past few years. On a routine examination on D-14, because of a negative fern test, I was able to predict to her that her menstrual irregularity was returning. On D-100 her test was still + 4, showing a lack of ovulation. She responded well to progesterone therapy. E.W., a 41 year old white female, presented herself on D-57 because she thought she was pregnant. The persistent fern test suggested hyperplasia, which was proven by endometrial biopsy on D-120. E.T. was a 31 year old sterility problem who deserted my care when told she was not pregnant on D-65 because of the + 4 fern test. She was told that she was pregnant elsewhere but returned to me six months later after a diagnosis of pseudocyesis was made at five and a half months by her second doctor.

Case B.D. was an example of oligomenorrhea with menstrual cycles every four to six months since menarchie. A diagnosis of pregnancy, very early, was made on D-98 when she presented herself because of her menstrual irregularity. This case has since been delivered of a viable normal infant.

CONCLUSIONS

In conclusion, I feel that the fern test is a very simple, rapid, and inexpensive test that can be done in any office in less than two minutes. The following conclusions would be suggested, but further clinical and laboratory tests are required to reach a definite conclusion.

1. In the sterility work-up, a negative

TABLE 7

L.W.	Irregular menses (Past.)	D-14	D-100		Prog.	D-108
28 yrs.	Regular for past years	Neg.	+4		Therapy	Menses
E.W.	Menses Reg. 25-27 day	D-57	D-87	D-94	D-120	▲Hyperplastic
41 yrs.	Cycles	+4	+4	trace	+4	Endometrium
E.T.		D-65	Pseudocyesis		6 mos. later	
31 yrs.	Menses regular	+4			+3	
B.D.	Menses very irregular	D-98	Uterus Sl. Soft		Pregnant	
22 yrs.		Neg.	Early preg.			

fern test would suggest ovulation has occurred if a previous fern test had been positive.

2. A persistent positive test would suggest no ovulation or hyperplasia.

3. A persistent mildly positive test would suggest hypoestrogenic effect.

4. In a normal menstruating woman who is late for her menses, a negative test is a highly presumptive evidence of pregnancy. If no menses occurs in one week, she is almost certainly pregnant.

5. A trace of ferning does not seem to be a test of placental insufficiency.

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DISCUSSION

Dr. S. V. Ward (New Orleans): It has been a pleasure for me to read Dr. McCune's paper and to hear its presentation. In fact, it was this paper alone which precipitated my interest in "ferning" and which made us adopt it as an office adjunct. I have pulled from my files 50 to 60 cases on whom we have observed the presence or absence of this phenomenon.

In the first place, it is a completely simple test that anyone can do with a slide and a microscope, a match and a minute. We use a cotton applicator twisted just into the external os of the cervix after wiping away any excessive mucus. Jelly and digital examination preceding the taking of the smear do not seem to affect it.

If there is any trick to the interpretation it consists of looking at a number of the tests to be able to separate the "trace" from the 1-2-3 and 4 plus. My technician and I have worked out a percentage method whereby they are listed 10, 20, 50 per cent, etc. or completely positive (100 per cent) which is 4 plus in the essayist's evaluation.

I feel there may be something more to the "trace" positives which he puts into the category of the negatives but have not yet determined the significance, if any. We would call this a 10 per cent positive. In its use in sterility studies, I envision this simple, painless test virtually replacing the endometrial biopsy to determine ovulation in the run-of-the-mill case, especially when combined with the temperature curve. Only in the questionable cases does biopsy seem necessary.

In the use of the ferning phenomenon in ovulation, the essayist states that a test run on the tenth and twenty-fourth days of the menstrual cycle should change from positive to negative. I presume that this is based on an average cycle length of twenty-eight days. However, since a woman ovulates then menstruates approximately two weeks later, it might be better to base this on a given length of time prior to menstruation than one after menstruation. In other words, taking these tests on the tenth and twenty-fourth days might be inaccurate when run on a woman with a twenty-four day cycle as compared with a woman with a thirty-eight day cycle. Possibly then, it might be better to say that in determining the presence or absence of ovulation, fern tests should be taken eighteen days and four days prior to the expected onset of a menstrual period.

It should be emphasized that though the progestational action makes the ferning disappear this is not a sudden action at the time of ovulation like the temperature curve, but rather the level of progesterone builds up until there is a turning point in the crystallization of the endocervical mucus. It has been shown that the new synthetic progestational drugs, Enovid and Norlutin, will change the mucus from positive to negative when given in adequate doses.

The essayist points out that Zondek's study shows 26 patients with ferning in pregnancy, 15 of whom aborted. Dr. McCune's results do not bear this out. However, my small series of cases does indicate this same conclusion as illustrated by the following facts.

In 22 patients whose menstrual periods were from one to eight weeks overdue, the ferning test was negative and the patients have proved to be pregnant and have continued their pregnancies. In one case there was a patient overdue who had a negative test and who aborted. Therefore, 22 out of 23 pregnant patients with negative tests have carried their pregnancies.

In 7 patients whose menstrual periods were from one to eight weeks overdue, one or more tests have been run and shown to be positive, the patients are not pregnant and it is presumed that these patients largely have endometrial hyperplasia.

However, in 5 cases whose periods were overdue, the test was positive and the patients aborted. No negative test (positive for pregnancy) was seen in spite of repeated checks in each of these 5 patients. Four patients who were overdue showed positive tests but which became negative and all have carried normally. Therefore, 5 of 9 with positive tests aborted. There were several patients

who were overdue their periods and who had negative tests (in whom pregnancy was therefore suspected) but it was seen that the patient menstruated shortly after this and therefore the test was rightly negative. Dr. McCune points out that if no menstrual period occurs within one week after a negative test is found in a patient whose menstrual period is overdue, that pregnancy should be strongly suspected, and I agree. His conclusions are all significant and indicate to us how we may put this simple test to practical use in our office every day.

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INEXPENSIVE VISUAL AID FOR PATIENTS WITH MACULAR DEGENERATIVE CHANGES

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In any ophthalmologist's practice, there are a large number of patients in the older age group. These patients often have macular degenerative changes in the various stages of development that will result in subnormal vision. A great percentage of these changes are vascular in origin and result in macular scarring. These patients have had repeated ophthalmological examinations and have been discouraged with the results they have obtained. They usually have had several pairs of glasses prescribed and have been told that their vision cannot be improved. Many have one or more visual aids which are on the market at the present time. The greatest dissatisfaction of these patients appears to be in their traveling vision; consequently, they are unable to move about freely without assistance.

IMPROVEMENT OF TRAVELING VISION

Like other ophthalmologists, I have available all the visual aids necessary to determine their value in improving the near and distance vision of these patients. All my early attempts were to improve television and reading vision. One kind soul informed me that she could not read and does not expect any improvement, but if she could get about without assistance, then she would be happy. Since that day, traveling vision has been my first consideration in these patients. The visual acuity for near and distance objects is tested with visual aids after the maximum improvement has been obtained. These patients often present evidence of vitamin deficiencies, which are a result of poor dietary habits or the result of poor absorption of the essential vitamins. They are given prescriptions for therapeutic formula of vitamin "B" complex with vitamin "C". Often, regurgitation will result in a discontinuation of the medication and office intramuscular injections are substituted. A visual and systemic improvement always results and, at times, the improvement is dramatic.

Traveling vision, in these patients with subnormal vision, may often be aided by the use of a special yellow tinted lens. This lens has been described and prescribed as "night driving" or "skeet shooting" lens. They are not well known and very little has been published on the use of these lenses. They are manufactured by the American Optical Company, under the trade name of "Noviol lenses," and by Bausch & Lomb Optical Company, as "Kalichrome lenses." The Bausch & Lomb lens is manufactured in two shades. The "A" shade is lighter in color and transmits some blue light. The "C" shade absorbs all the blue and violet, as well as the ultraviolet rays, and is the one most widely used. Green, yellow, and orange rays are transmitted fairly constantly over the remainder of the visible spectrum. The lens also has a fairly high transmission of the infra red. Historically, the lens is not a new one and has been made in this country for about the same length of times as white crown glass. The Bureau of Standards, in 1918, referred to the yellow ophthalmic lens as the "Akopos

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or Noviol Lens." The lenses are available as moulded blanks, single vision, and in both fused and one-piece bifocal. The "C" shade is made in only a single piece bifocal.

The intended use of the lens is for contrast on murky or foggy days and is not intended for the absorption of glare. In contrast the patient with macular changes is aided on bright sunny days and not on dull days. The patient's prescription may be incorporated in the lens. I had an aphakic pair made for a cataract patient with macular scars. She is now able to tell time and read large letters with these lenses.

A clip-on set of lenses may be used as test lenses. At present, I have several pairs in each refracting room of my clinic. The sizes vary to fit the various sizes and shapes of frames that the patient may be wearing. During the initial ophthalmological examination, I often clip on the yellow lenses, over their frames. The patient is then sent out with an attendant to walk about the clinic. The patient, in his excitement, will tell you if the lenses are of any assistance. Should traveling vision be improved, then he is permitted to take home the clip-on lenses on a trial basis. He is instructed in the use of the lens. Should the patient be satisfied with the results obtained, then his new prescription may be incorporated in the yellow lens.

After several weeks of vitamin and other medication, as needed, the patient returns for further study. The visual improvement and ocular tension are recorded at each visit. If the intraocular pressure permits, I dilate the pupils of my patients with a weak mydriatic. This technique saves time in refracting the patient and gives a better fundus examination. The findings are recorded in detail by my office nurse. The manifest or fogging procedure of refraction is most often futile in the patient with poor visual acuity.

OTHER VISUAL AIDS

The patient often improves to the stage where various visual aids may be tried. Various magnifiers, telescopic lenses, pin hole glasses, etc., are available in each refracting room. The visual aids often improve vision to the point where the patient can enjoy television and reading. Unfortunately, these patients are beyond the earning period of life and do not have the funds to purchase the more expensive visual aids. The American Foundation of the Blind offers many of these aids to these patients at a reasonable price. The patients' satisfaction with the yellow lenses has been so gratifying that I feel my fellow ophthalmologists should share my good fortune. I also feel that the manufacturers of visual aids should incorporate the yellow lens in their optical systems, as this would raise the percentage of patients assisted by their products. I hope that this paper will stimulate further research in the effect of color filters on patients with subnormal vision.

Note: My thanks to Mr. P. Pyle, of the Ophthalmic Lens Department of Bausch & Lomb Optical Company, for his technical assistance in the preparation of this paper.

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CLINICAL SIGNIFICANCE OF QUANTITATIVE CHEMICAL ANALYSIS OF HORMONES

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There is little doubt that the central nervous system, particularly phylogenetically ancient centers like the hypothalamus,[1-3] amygdala [4] and hippocampus,[5] profoundly influences secretory activity of the anterior pituitary (adenohypophysis), probably mediated by "hormones" traversing the hypophyseal portal circula-

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tion.[6] It is well known that tropic hormones elaborated by the anterior pituitary regulate in responsive target glands (thyroid, ovary, testis and adrenal cortex) production of hormones that are active metabolically in peripheral tissue cells.

THYROID STIMULATING HORMONE

Thyroid stimulating hormone (TSH) activates the thyroid to produce thyroxine and 3, 5, 3′ triiodothyronine.

ADRENOCORTICOTROPIN

Adrenocorticotropin (corticotropin, ACTH), stimulates adrenal cortical production of glucocorticoids (cortisone, cortisol and corticosterone) and androgens (17-ketosteroids, 17-KS). Glucocorticoids are called Porter-Silber[7] chromogens (PSC) and also 17-hydroxycorticosteroids (17-*OH*-CS). Aldosterone, the principal sodium-retaining hormone of the adrenal cortex, is only partially under control of ACTH.

PITUITARY GONADOTROPINS

There are three pituitary gonadotropins: (1) During the procreative age in females, *follicle stimulating hormone* (FSH) acts upon the Graafian follicle, resulting in production of estrogens (estriol, estrone, estradiol-17 Beta, 16-*epi*estriol and 16-Alpha-hydroxyestrone). (2) During the procreative age in males *interstitial cell stimulating hormone* (ICSH) causes Leydig cells of the testis to produce androgens, which are measured in urine as 17-KS (1/3 testis and 2/3 adrenal cortex). (3) During the procreative age in females this tropic hormone (ICHS) is called *luteinizing hormone* (LH). It acts upon the corpus luteum to produce progesterone, which is a precursor in the biosynthesis of cortisol (hydrocortisone), pregnanediol and pregnanetriol. Progesterone exerts a powerful influence on pregnancy maintenance (here it is also made in abundance by the placenta) and development and maintenance of acinar breast tissue.

LUTEOTROPIC HORMONE

Luteotropic hormone (LTH, luteotropin, prolactin, lactogenic hormone, galactin, mammatropin) stimulates lactation.

MODES OF ESTIMATION

Anterior pituitary tropic hormones (TSH, ACTH, FSH, ICSH, LH, LTH) all are measured by biological (animal) assay. Chemical methods for their quantitation have not been perfected. They are of great academic and investigative interest, but with the exception of FSH, rarely if ever, merit clinical determination. Promising assay methods are listed in Table 1.

CHEMICAL QUANTITATION OF TARGET GLAND HORMONES USEFUL IN CLINICAL PRACTICE

A. THYROID
   1. Serum protein-bound iodine (PBI)[15]
   2. Serum butanol-extractable iodine (BEI)[16]

B. ADRENAL CORTEX
   1. Urinary 17-hydroxycorticosteroids (17-*OH*-CS, PSC)[17]
   2. Plasma 17-hydroxycorticosteroids (17-*OH*-CS, PSC)[18]
   3. Urinary aldosterone (electrocortin)[19]
   4. Urinary 17-ketosteroids (17-KS)[20]

C. ADRENAL MEDULLA
   1. Urinary catecholamines[21]

D. TESTIS
   1. Urinary 17-ketosteroids

E. OVARY
   1. Urinary estrogens[22]
   2. Urinary pregnanediol[23]
   3. Urinary pregnanetriol[23]

TABLE 1
BIOASSAY OF ADENOHYPOPHYSEAL TROPIC HORMONES

Hormone	Media	Parameter	Reference
TSH	Blood	I^{-131} discharge from chick thyroid	Gilliland & Fraser[8]
ACTH	Blood	Rat adrenal ascorbic acid depletion	Syndor & Sayers[9]
FSH	Urine	Rat ovarian weight	Steelman & Pohley[10]
ICSH (LH)	Urine	Rat prostatic weight	Greep et al[11] Loraine & Brown[12]
LTH	Urine	Pigeon crop histology	Lyons & Page[13] Bahn & Bates[14]

F. PLACENTA
1. Urinary estrogens
2. Pregnanediol
3. Pregnanetriol

SERUM PROTEIN BOUND IODINE

This inexpensive test of thyroid function,[24-25] while it does not measure specifically any of the thyroid hormones, is well established, having a high index of precision in the absence of exogenous iodide or thyroid. Samples may be drawn at any time without regard to fasting or basal activity. Normal range for children and adults is 4-8 mcg./100 ml. Care must be taken that needles and syringes are not contaminated with iodides. *High* values are found in hyperthyroidism, and *low* values are seen in primary hypothyroidism and secondary hypothyroidism (panhypopituitarism, hypoantuitarism, Sheehan's syndrome, Simmond's disease, hypothalamic and hypophyseal lesions). Spurious deflection in euthyroidism may occur with the following:

A. HIGH
1. Thyroid
2. Estrogen
3. TSH
4. Pregnancy
5. Thyroiditis
6. Thyrotoxicosis factitia
7. Cold exposure
8. Hepatitis
9. Iodides (I. M., I. V., oral, topical, and intrathecal)

B. LOW
1. Thiouracil
2. Testosterone
3. Renal insufficiency
4. Cirrhosis
5. Hg. diuresis
6 Pentothal®
7. Cortisone
8. Irradiation
9. Epinephrine
10. Triiodothyronine

SERUM BUTANOL EXTRACTABLE IODINE

Extraction with butanol[26-28] obviates inclusion in the measurement of inorganic iodide contamination of serum from iodine medications and x-ray procedures such as cholecystograms, myelograms, and pyelograms. It is also of value in the detection of patients whose PBI is normal but who secrete metabolically inactive thyroid hormones. Values in health are about 4/5 that of PBI, except during the neonatal period, where values are higher. Clinical indications are the same as for PBI.

URINARY 17-HYDROXYCORTICOSTEROIDS[28-38]

Collection of samples is an important part of the test. Twenty-four hour volumes are required. The bladder should be emptied and that specimen discarded. Thereafter all urine to include a final voiding twenty-four hours later is collected in a vessel containing a preservative to prevent bacterial digestion. Toluene (5 ml.) or ½ per cent thymol in glacial acetic acid (5 ml.) will suffice for the average twenty-four hour volume. The total volume must be known to the analyst.

Methodology is a topic of considerable importance, and there are sharp differences of opinion on merits of various procedures. It is generally held that glucocorticoids (cortisone, hydrocortisone and corticosterone) are the active adrenal cortical hormones from the standpoint of anti-inflammatory and sugar-promoting effects. These hormones are characterized by 17:20-*diol*, 20-*one* side chain on the steroid molecule and singularly develop yellow color as Porter-Silber chromogens in reaction with phenylhydrazine and sulphuric acid. Refinement of this method with Beta-glucuronidase hydrolysis (in lieu of hot acid) and aluminum trisilicate (florisil®) column chromatography has resulted in a method (Glenn-Nelson) of high specificity. Methods employing reduction or oxidation measure additional steroids, many of which have no glucocorticoid activity.

Physiological variations in 17 - OH - CS are: (1) Diurnal rhythmicity, with low values at midnight; (2) rise with stress and late in pregnancy, and (3) fall in the neonatal period (third to tenth day of life).

Glenn-Nelson values in health are: males 3-8 mg/24 hours and females 2-6 mg/24

hours. Elevated values with ACTH stimulation (20 USP units in 1000 ml. 5 per cent dextrose in D/W infused I.V. from 8 A.M. to 4 P.M.) are 4 to 8 times higher in normals. Suppression of endogenous ACTH and subsequent fall in adrenal cortical function with 9-Alpha - fluorohydrocortisone (1 mg. every eight hours for three days) or triamcinolone (aristocort®) 2 to 4 mg. every 6 to 8 hours for three days results in low values (0.5 to 2 mg/24 hours) in normals.

Clinical indications for urinary 17-*OH*-CS are: Cushing's disease (pituitary basophilic adenoma), Cushing's syndrome (bilateral adrenal cortical hyperplasia, adrenal cortical adenoma, and adrenal cortical carcinoma), Addison's disease, panhypopituitarism, adrenogenital syndrome, and when *obesity* is coupled with other stigmata of adrenal cortical hyperfunction, such as hirsutism, striae, psychosis, diabetes mellitus, acne, hypertension, peptic ulcer, osteoporosis, nephrocalcinosis and renal stones.

High values are encountered in Cushing's disease, Cushing's syndrome, hyperthroydism, often in acromegaly, sometimes in Laurence-Moon-Biedl and Klinefelter's syndromes, and following ACTH administration or exogenous Compound E (cortisone acetate), Delta-1-E (prednisone), Compound F (hydrocortisone), Delta-1-F (prednisolone) and 6-methyl-prednisolone in dosage above 30 mg. per day.

Low values are observed in Addison's disease, panhypopituitarism, and following administration of small doses of 9-Alpha-fluorohydrocortisone (2-6 mg. daily) or triamcinolone, since the C-16-*OH* grouping of triamcinolone (aristocort®) apparently prevents appreciable recovery [39] of the compound as Porter-Silber chromogens.

PLASMA 17-HYDROXYCORTICOSTEROIDS

There is linear relationship between urinary and plasma 17-*OH*-CS. Clinical indications are the same as for urinary 17-*OH*-CS, but measurement from the circulation should be preferred to urinary measurement, since patients sometimes are unforthcoming with total 24 hour volumes. Normal values are 6-22 mcg./100 ml., and following 25 USP units of ACTH given I.V. for four hours, values rise to 35-55 mcg./100 ml.[40-41] High and low values have the same significance as urinary 17-*OH*-CS.

URINARY ALDOSTERONE

Aldosterone quantitation is a laborious procedure requiring continuous chloroform extraction, serial chromatography on silica, celite and paper, and final estimation by fluorimetry. Normal range is 4.6 to 18.9 mcg./24 hours. Low values are found in Addison's disease [42] and post-adrenalectomy (bilateral) syndrome. High readings are seen in primary aldosteronism [43] (adrenal cortical tumor or bilateral hyperplasia), nephrotic syndrome, cardiac failure with edema,[44] malignant hypertension,[45] cirrhosis of the liver with ascites,[46] and in late pregnancy.[47] Diurnal variation is absent.[48] Hydration and electrolytes markedly influence urinary aldosterone excretion.[49]

Technical time required and reagent expense rarely justify aldosterone measurement in clinical medicine. Indirect calculation in all cases should precede requesting aldosterone quantitation. When serum sodium and potassium are expressed in mEq/L, a ratio $\frac{Na+}{K+}$ less than 30 usually precludes primary aldosteronism.

URINARY 17-KETOSTEROIDS

Collection procedure is identical with urinary 17-*OH*-CS. Urinary 17-KS are derived from 5 Alpha-androstane and 5 Beta-androstane. They are characterized by an oxygen atom at C-17. Desoxy, oxo and hydroxyl groupings at C-11, and spatial differences of hydroxyl groupings at C-3 and hydrogen atoms at C-5 differentiate the various compounds. They are elaborated principally by the adrenal cortex (2/3) and testis (1/3), with small quantities from the ovary. They are conjugated by the liver and excreted in urine as glucuronides and sulphates. Quantitation is based on acid hydrolysis, purification and development of the purple Zimmerman color with *m*-dinitrobenzene.

Physiological variants are low levels in children (0 to 1 mg) up to 6 years of age, with gradual increases to a sharp

rise at puberty and a final gradual decline from age 30 to senescence.[50] Normal values for adult males are: 10 to 20 mg./24 hours, and for females: 5 to 15 mg./24 hours.

High values are seen in Cushing's syndrome, congenital adrenal cortical hyperplasia (adrenogenital syndrome), testicular tumors (interstitial cell, seminoma, teratoma), stress, following morphine withdrawal, and some cases of virilization, hirsutism, sexual precocity, ovarian tumors (arrhenoblastoma), acne and Stein-Leventhal Syndrome.

Low values are found in Addison's disease, male hypogonadism, panhypopituitarism, myxedema, anorexia nervosa, hepatic insufficiency, glucocorticoid medication, post-adrenalectomy (bilateral) syndrome, post-hypophysectomy, post-orchidectomy, some cases of gynecomastia and often in schizophrenia.

URINARY CATECHOLAMINES

Voided specimens of 200 ml. following hypertensive paroxysms are satisfactory, however, the test is performed better on twenty-four hour urine volumes collected in 10 ml. 6N sulfuric acid. The *p*H should be kept below 4.0 with 6N sulphuric acid to prevent deterioration of catechols (epinephrine and norepinephrine). The method depends upon fluorescence properties of catechols.

Values less than 15 mcg./100 ml. of urine or less than 100 mcg./24 hours are found in normals. In pheochromocytoma and certain psychiatric disorders larger quantities are excreted.

It is estimated that 800 persons in the United States die annually because of pheochromocytoma.[51] Since hypertension from these adrenal medullary tumors is curable with surgery, there are many who believe screening hypertensives by urinary catecholamine determination will approach routine in the near future.

URINARY ESTROGENS

Twenty-four hour urine collections as described for 17-*OH*-CS are required. Structurally estrogens are steroids closely resembling 17-ketosteroids, with characterization chiefly by the phenolic ring A, giving weakly acidic properties. Five compounds (estriol, estrone, estradiol-17 Beta, 16-*epi*estriol and 16-Alpha-hydroxyestrone) have been isolated from urine in humans.

In health chief sources of estrogens are the ovary and placenta. Small amounts are found in the adrenal cortex and testis.

Biological and fluorometric estimation of estrogens lack sufficient index of precision for clinical use. The colorimetric method of Brown has quantitative specificity for estriol, estrone and estradiol-17 Beta as low as 2 mcg./24 hours. Unfortunately it does not measure 16-*epi*estriol or 16-Alpha-hydroxyestrone, but it is the only method which gives reproducibility, and therefore, should be used for quantitative estimation. Colorimetric determination of estrogens is a toilsome, not inexpensive procedure, and judiciousness seems essential in its clinical use. Vaginal cytological counts should be used for qualitative estrogen estimation.

Physiological variations are low levels in children[52] and men,[53] relatively low levels in the first ten days of the menstrual cycle, with an ovulation peak congruous with temperature rise, and gradual fall until catamenia ensues.[54] There are low levels postmenopausally,[55] and great increases in late pregnancy.[56]

TABLE 2
PHYSIOLOGICAL RANGE OF URINARY ESTROGENS (MCG./24 hours)

Sex	State	Estriol	Estrone	Estradiol-17B
	Onset menses	0-15	4-7	0-3
	Ovulation	13-54	11-31	4-14
Women	Luteal Peak	8-72	10-23	4-10
	Postmenopausal	0.6-8.6	0.8-7.1	0-3.9
	3rd Trimester	30,000	2,000	750
Men		0.8-11	3-8.2	0-6.3

PATHOLOGICAL EXCRETION OF URINARY ESTROGENS

A. HIGH
1. Ovarian tumors (granulosa cell, thecoma, fibroma, Brenner)
2. Chorionepithelioma of ovary and testis
3. Cushing's syndrome with feminization
4. Some cases of gynecomastia

B. LOW
1. Primary and secondary amenorrhea
2. Threatened abortion
3. Fetal death
4. Pre-eclamptic toxemia
5. Lactation
6. Puerperium
7. Post-adrenalectomy (bilateral)
8. Post-hypophysectomy
9. Ovarian dysgenesis (Turner's syndrome)

URINARY PREGNANEDIOL AND PREGNANETRIOL

Collection of samples is similar to that for 17-*OH*-CS. Pregnanediol and pregnanetriol are metabolites of progesterone. Quantitation is accomplished with Beta-glucuronidase incubation, benzene extraction, alumina column chromatography, and elution with ethanol.

Physiological variations of pregnanetriol are less than 1.6 mg./24 hours in children, men and women,[57] with elevations of 2-7 mg./24 hours in the third trimester of pregnancy[58] and in hyperthyroidism.[59] Pregnanediol variations are less than 1.6 mg./24 hours in children,[60] men[61] and during the follicular phase in menstruating women. The luteal peak in women causes rises of 5-10 mg./24 hours.[62] In the last seven months of pregnancy values gradually increase to 60-100 mg./24 hours.[63]

In patients with congenital adrenal cortical hyperplasia (adrenogenital syndrome) there is genetic error in enzymatic biosynthesis of cortisol from 17-Alpha-progesterone, which results in increased quantities of pregnanediol and pregnanetriol in urine as optional metabolites.

PATHOLOGICAL URINARY EXCRETION OF PREGNANEDIOL AND PREGNANETRIOL

A. HIGH
1. Stein-Leventhal syndrome
2. After ACTH
3. Progesterone medication
4. Congenital adrenal cortical hyperplasia
5. Some other types of Cushing's syndrome

B. LOW
1. Amenorrhea (primary and secondary)

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DR. JAMES Q. GRAVES

With the passing of Dr. James Q. Graves the community of Monroe and the Louisiana State Medical Society, and the cause of organized medicine lost an eminent physician, a good friend, and a devoted servant.

Dr. Graves died unexpectedly at the age of eighty on November 10, 1958. He was practicing medicine up to the hour of his death. He was still exhibiting the enthusiastic zeal and active leadership for which he was so widely known.

Dr. Graves was born in Columbia, Louisiana, in 1878. He was graduated from Louisiana Tech., and later finished Tulane University School of Medicine in 1906. He interned in Charity Hospital, Shreveport, practiced two years in Columbia, Louisiana, and moved to Monroe, where he became a beloved physician, revered for his skill and judgment and renowned for his cheerfulness and resourcefulness.

He was the only surviving member of the original staff of the St. Francis Hospital.

He was active in the affairs of Ouachita Parish Medical Society, and in the Louisiana State Medical Society, in which he served on Councils and Committees. For thirty years, he was one of the two delegates from Louisiana to the House of Delegates of the American Medical Association, and had the distinction of having served longer than any other delegate. He had the further distinction of being known throughout the nation for his genial friendship, constructive leadership, and sound advice.

In 1956, he received a citation along with ten other physicians in the Fifty Year Doctor club awarded by the Louisiana State Medical Society. Similarly, he was recognized as a fifty year graduate of the Tulane University Medical School.

He was an active member and past president of the Louisiana Surgical Association, and was a Fellow of the American College of Surgeons. He was a past president of the Monroe Rotary Club, a member of the First Methodist Church in Monroe, and an active Mason.

Dr. Graves radiated cheerfulness and set an example of integrity and adherence to ethical principles, which was to be admired by all. For more than fifty years he practiced a profession that he loved and exhibited his great interest in medical progress. His appreciation of the benefits of the profession properly practiced contributed to his enthusiasm and energy. He was one of those physicians most effective in making Monroe a medical center.

It is most appropriate that a Department of Radioactive Isotopes for the treat-

ment and diagnosis of disease will be established at the St. Francis Hospital in memory of Dr. Graves. Such a department will be a most fitting memorial to a physician whose aim it was to exemplify the higher precepts of medicine.

He is survived by his widow and four daughters, and by ten grandchildren, all of Monroe. The members of the profession will miss his friendship and good counsel, and his community will miss his skill, enthusiasm, and kindly advice.

—o—

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

SIMPLIFIED INSURANCE CLAIM FORMS

A guide for physicians on the use of the new simplified forms for accident and health insurance policies issued by insurance companies has been published by the Health Insurance Council.

Entitled "Simplified Claim Forms for Accident and Health Insurance—A Report to the Physician," the manual describes the principles of the Council program to reduce paper work for doctors and at the same time provide insurance companies with the medical information they need to process and pay claims. The claim forms—called "Standardized Attending Physician's Statements"—were developed by the Council's Uniform Forms Committee in cooperation with the American Medical Association.

Ralph T. Heller, Chairman of the Uniform Forms Committee and Second Vice President of the Prudential Insurance Company of America, described the report as a supplement to a booklet distributed among insurance companies last year urging their adoption of the new forms.

"The response of the insurance business to the report to companies has been most gratifying," declared Mr. Heller. "A steadily growing number of insurance companies across the country have adopted the simplified claim forms and others have made definite plans to do so. Now we want to tell our story to the nation's doctors, so that they may be better aware of what is being done to reduce the burden of their paper work, and, thereby, better serve their insured patients."

Mr. Heller stressed the need for cooperation by all physicians in their acceptance and use of the simplified claim forms, noting that these forms have been approved by the American Medical Association's Council on Medical Service upon the recommendation of its Committee on Prepayment Medical and Hospital Service. In addition, he emphasized that the Uniform Forms Committee is "continuing to study ways and means to further implement the program."

"Whenever modification of the present forms becomes desirable as a result of expanding health insurance coverage," added the Council spokesman, "such changes will be made in a manner compatible with the needs of the public, the medical profession and the insurance companies."

Replacing a great variety of claim forms from hundreds of companies, the Health Insurance Council forms consist of two basic attending physician's statements—one for group accident and health insurance, and the other for individual and family health policies. They are to be used solely in connection with accident and health insurance claims.

The forms comprise a standard set of questions, in a standard sequence, which are the minimum required to meet the provisions of most insurance companies. Some questions and phrases are optional and in many instances will not be required or used by companies. The questions used, however, will be sufficient to provide the information needed to process routine claims of all types, including initial and continuing proof of disability as well as surgical and medical claims information.

In addition, there are four abbreviated forms to be used for surgical and continuing disability statements for group and individual insurance respectively.

A key feature of the simplified claim forms program is the new identifying symbol developed by the Council for use on the claim forms. Certifying that the standard wording and sequence of questions have been utilized, the symbol facilitates doctor recognition of the form. In this regard, Mr. Heller noted that it will take "some time for companies to imprint the new symbol on the simplified forms which are already in widespread use."

Additional copies of "Simplified Claim Forms for Accident and Health Insurance—a Report to the Physician" may be obtained upon request from the Health Insurance Council, 488 Madison Avenue, New York 22, New York.

This pamphlet has been mailed to each member

of our Society, and it is hoped that these insurance forms will meet with your approval. These forms have been approved by your State Society and American Medical Association.

DEATHS 1958
MEMBERS OF LOUISIANA STATE MEDICAL SOCIETY

Dr. Kotz Allen, New Orleans, November 4
Dr. Jacob Barnett, New Orleans, August 23
Dr. William Louis Bendel, Monroe, February
Dr. J. N. Brown, Campti, October 10
Dr. Daniel Clyde Brumfield, Darrow, March 23
Dr. Gene Delmar Caldwell, Shreveport, March 11
Dr. Francis Urban Darby, Box 435, Loreauville, September 20
Dr. George Frederick C. Fasting, New Orleans, May 26
Dr. William Robert Garrett, Springhill, March 19
Dr. Irving Jeffery Glassberg, Minneapolis, July 28
Dr. Samuel Joseph Goldfain, Baton Rouge, January 17
Dr. J. Q. Graves, Monroe, November 12
Dr. Cheney Cleveland Joseph, Baton Rouge, October 13
Dr. William Ernest Kramer, Monroe, October 17
Dr. James Vann Lamberth, Pineville, March 23
Dr. Frank Eugene Lamothe, New Orleans, March 19
Dr. Wallace James Landry, Jr., New Orleans, November 15
Dr. George Charles Miramon, New Orleans, January 2
Dr. Charles Francis O'Brien, Jackson, La. January 20
Dr. Ruffin Baker Paine, Mandeville, May 25
Dr. Cassius Lee Peacock, New Orleans, March 16
Dr. Paul W. Renken, New Orleans, November 22
Dr. Wallace Saburo Sako, Raceland, July 5
Dr. George Mason Graham Stafford, Baton Rouge, February
Dr. James Alex Thom, Baton Rouge
Dr. David Weinstein, Opelousas, June 29
Dr. G. Richarda Williamson, New Orleans, September 19
Dr. Edward Bradley Young, Zachary, March 11

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Ascension	Third Tuesday of every month	
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Tuesday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Indepencence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SEVENTH POSTGRADUATE CONFERENCE IN MEDICINE AND SURGERY

The Temple Division of the University of Texas Postgraduate School of Medicine announces its SEVENTH POSTGRADUATE CONFERENCE stressing **Current Topics in Medicine and Surgery.** Dr. F. J. L. Blasingame, Executive Vice-President of the American Medical Association, will be the guest speaker. **Open House** in the Department of Clinical Investigation and Research and in the Department of Physiotherapy and Rehabilitation is scheduled for the third afternoon. This program, sponsored by Scott, Sherwood and Brindley Foundation, will be presented in Temple on March 2, 3, 4, 1959.

Registration forms are available from the office of the Assistant Dean, University of Texas Postgraduate School of Medicine, Temple Division, Temple, Texas.

SOUTHEASTERN REGIONAL MEETING INTERNATIONAL COLLEGE OF SURGEONS

The Southeastern Regional Meeting of the International College of Surgeons will be held at the Americana Hotel, Bal Harbou, Miami Beach, Florida, from January 4th to 7th, 1959.

This meeting has been approved for general practitioners also, by the American Academy of General Practice for Category I credit.

Those interested may write for a preliminary

program to: Harold O. Hallstrand, M. D., General Chairman, 7210 Red Road, South Miami, Fla.

AMERICAN COLLEGE OF CHEST PHYSICIANS

At the 15th Annual Meeting of the Southern Chapter of the American College of Chest Physicians, held in New Orleans, November 2-3, 1958, the following officers were elected:

President: Daniel E. Jenkins, Houston Texas
1st Vice-President: John H. Seabury, New Orleans, Louisiana
2nd Vice-President: DeWitt C. Daughtry, Miami, Florida
Secretary-Treasurer: Henry R. Hoskins, San Antonio, Texas

The following have been elected officers of the Louisiana Chapter of the American College of Chest Physicians:

President: Morton M. Ziskind, New Orleans
1st Vice-President: Howard A Buechner, New Orleans
2nd Vice-President: Dwight S. Danburg, Greenwell Springs
Secretary-Treasurer: William Leon, New Orleans

POSTGRADUATE COURSE ON DISEASES OF THE CHEST

The Council on Postgraduate Medical Education of the American College of Chest Physicians will present the Fourth Annual Postgraduate Course on Diseases of the Chest at the Sir Francis Drake Hotel, San Francisco, California, February 16-20, 1959.

The most recent advances in the diagnosis and treatment of heart and lung diseases, medical and surgical aspects, will be presented.

Tuition for this five-day course will be $100, including luncheon meetings.

Further information may be obtained by writing to the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

GASTROENTEROLOGISTS ELECT

Dr. Joseph Shaiken, Milwaukee, Wisc., Associate Professor of Clinical Medicine, Marquette University Medical School, has been chosen as President-Elect of the American College of Gastroenterology, at the Annual Meeting of the College, held Sunday, October 19th, in New Orleans, La. He will assume the Presidency at the Annual Meeting to be held in Los Angeles, Calif., in September of 1959.

Dr. Frank J. Borrelli of New York, N. Y., selected President-Elect in Boston in 1957, assumed the Presidency of the College at the Annual Dinner-Dance held at the Jung Hotel on October 21. He succeeds Dr. C. Wilmer Wirts of Philadelphia, Pa.

Other officers elected were: Vice-Presidents—Drs. Henry Baker, Boston, Mass.; Louis Ochs, Jr., New Orleans, La.; Edward J. Krol, Chicago, Ill.; Dr. Theodore S. Heineken, Glen Ridge, N. J. Dr. Joseph R. Van Dyne, Forest Hills, N. Y., was elected Secretary.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The twenty-second annual meeting of The New Orleans Graduate Medical Assembly will be held March 2-5, 1959, headquarters at the Roosevelt Hotel. Listed below are members of the Standing Committees for this year:

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AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next scheduled examinations (Part II), oral and clinical for all candidates will be conducted at the Edgewater Beach Hotel, Chicago,

Illinois, by the entire Board from May 8 through 19, 1959. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations as soon as possible.

Current Bulletins of the American Board of Obstetrics and Gynecology, outlining the requirements for application, may be obtained by writing to Robert L. Faulkner, M. D., Secretary, 2105 Adelbert Road, Cleveland 6, Ohio.

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WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

The Woman's Auxiliary to the Southern Medical Association, in New Orleans for their thirty-fourth annual meeting, were entertained at a tea the afternoon of Wednesday, November 5, at the Orleans Club with the members of the Woman's Auxiliary to the Orleans Parish Medical Society acting as hostesses.

Honored guests were Mrs. Walker L. Curtis, president of S.M.A. Auxiliary, Mrs. George W. Owen, president-elect and Mrs. E. Arthur Underwood, president Woman's Auxiliary to the American Medical Association.

Receiving with the honorees were Mmes. Albert Habeeb, F. J. L. Blasingame, George F. Lull, Edwin L. Zander, Milford O. Rousa, Charles B. Odom, Arthur D. Long and Edward Harrell. Mrs. J. Morgan Lyons was chairman of the tea and was assisted by Mmes. J. Kelly Stone, William J. Rein, Boni J. deLaureal, C. Grenes Cole, D. W. Hayes.

Assisting in the dining room during the hours of the tea were Mmes. George D. Feldner, Wiley R. Buffington, Rufus Alldredge, Hyder Brewster, Richard Buck, A. B. Cairns, Claude G. Craighead, Carl E. Granberry, Max M. Green, M. M. Hattaway, Edgar Hull, Howard Mahorner, B. F. Parker, Joseph Reddoch, John T. Sanders and Robert Sharp.

OUACHITA PARISH

The Bayou DeSiard Country Club was the setting for a luncheon and style show when the Woman's Auxiliary to the Ouachita Parish Medical Society held its October meeting. Hostess for the luncheon was Mrs. Doyle Hamilton and she was assisted by Mrs. Henry Hammonds as co-chairman, and Mmes. C. E. Wilds, J. B. Jones, George Wright, Jr. and Fred Millsaps. The models showing the latest fashions were Mmes. E. T. Chapman, Vernon Maish, William Durrett, John Crump, James Ewing, III, John B. McKinley, Fred Petty, Hugo Angelini, Doyle Hamilton, J. B. Stoddard, Herbert Mayo and Robert Wood.

Mrs. Branch J. Aymond,
Press and Publicity chairman.

—o—

BOOK REVIEWS

William Harvey, His Life and Times, His Discoveries, His Methods, by Louis Chauvois. New York, Philosophical Library, 1957. pp. 271 pl. Price, $7.50.

It is a characteristic of the truly great that their fame and recognition increase rather than diminish with the passing years, and so it is with William Harvey. His work is of paramount importance, not only because it served as a foundation of modern physiology, but also because he established a pattern for the conduct of research by experiment, through observation, consideration, experiment and judgment of results.

The author is a distinguished French physician, medical historian, and Latinist, recipient of the *Prix d'Histoire et de Philosophie des Sciences* of the *Academie des Seiences de Paris*, in 1955. In this volume, Dr. Chauvois gives not only an original and scholarly life of William Harvey and his relations with his contemporaries, but re-examines the Latin texts of Harvey's teachings and shows that certain current interpretations of Harvey's teachings are incorrect. He considers Harvey's line of thought in the light of modern knowledge and suggests from his study, some modifications of practical importance in the interpretation of the circulation of the blood.

MARY LOUISE MARSHALL

PUBLICATIONS RECEIVED

Doubleday & Co., Inc. N. Y.: The Doctor Business, by Richard Carter.

Paul B. Hoeber, Inc., N. Y.: Clinical Obstetrics and Gynecology: Symposium on Special Diagnostic Aids, edited by C. Paul Hodgkinson, M.D.; Symposium on Abnormal Uterine Bleeding, edited by John I. Brewer, M.D.

The C. V. Mosby Co., St. Louis: Breast Cancer; The Second Biennial Louisiana Cancer Conference, edited by Albert Segaloff, M.D.

Philosophical Library, N. Y.: Epilepsy, by Manfred Sakel, M.D.

Charles C Thomas, Publisher, Springfield, Ill.: The Recovery Room; A Symposium, by John Adriani, M.D., and John B. Parmley, M.D.

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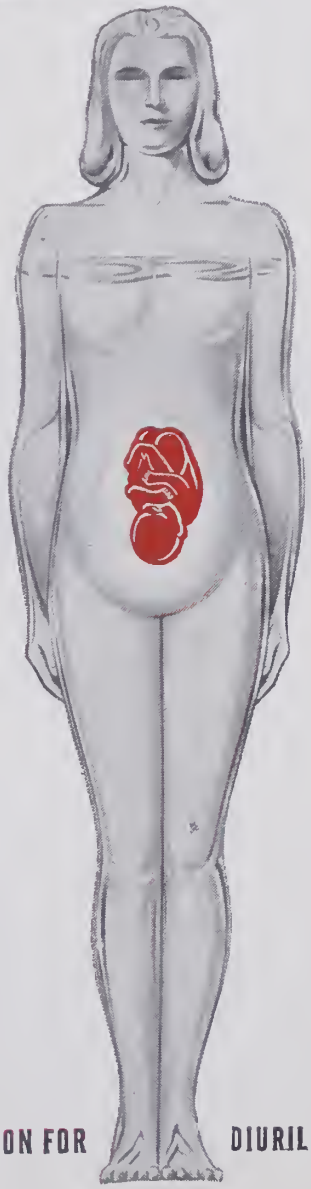
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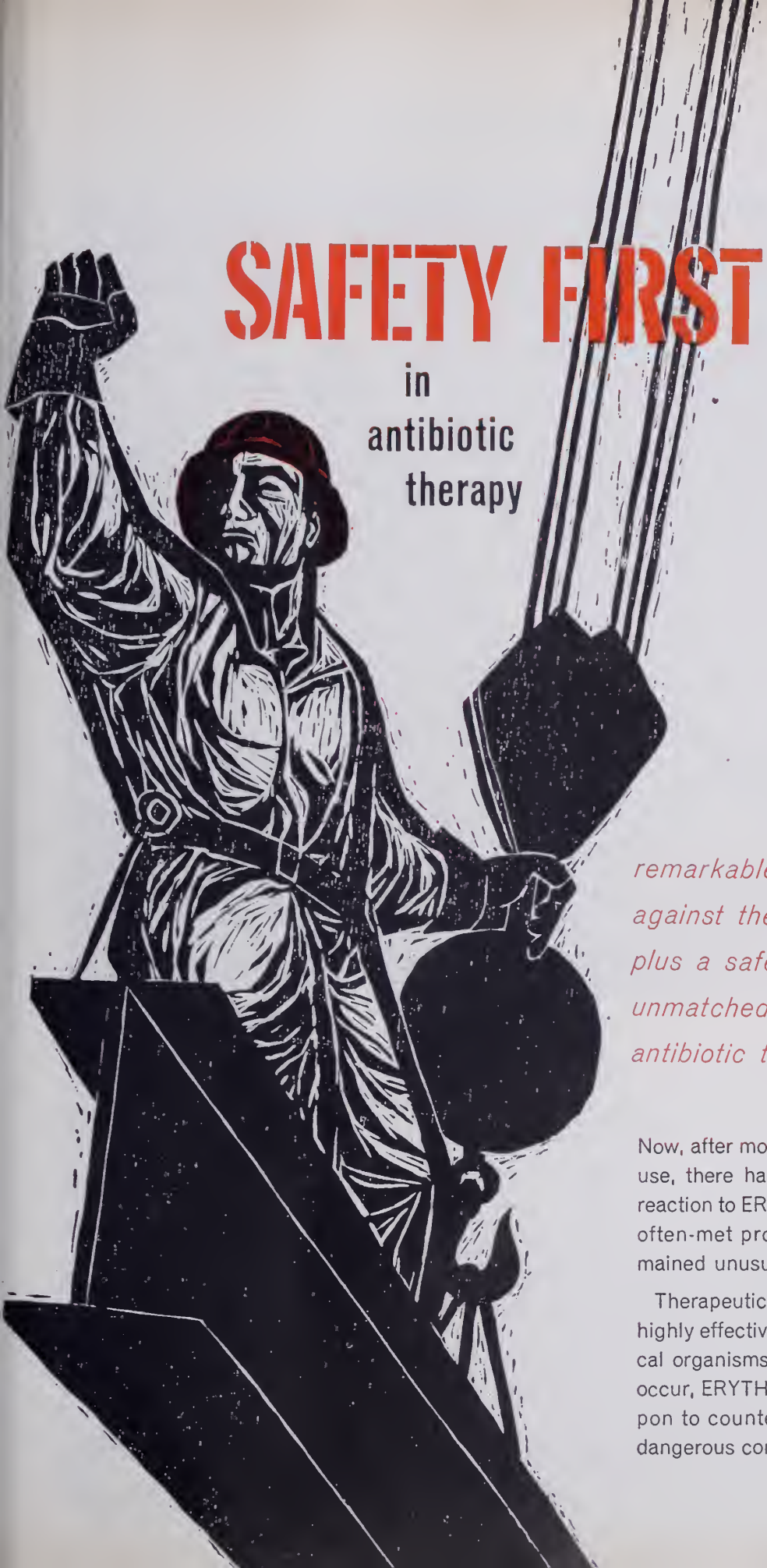
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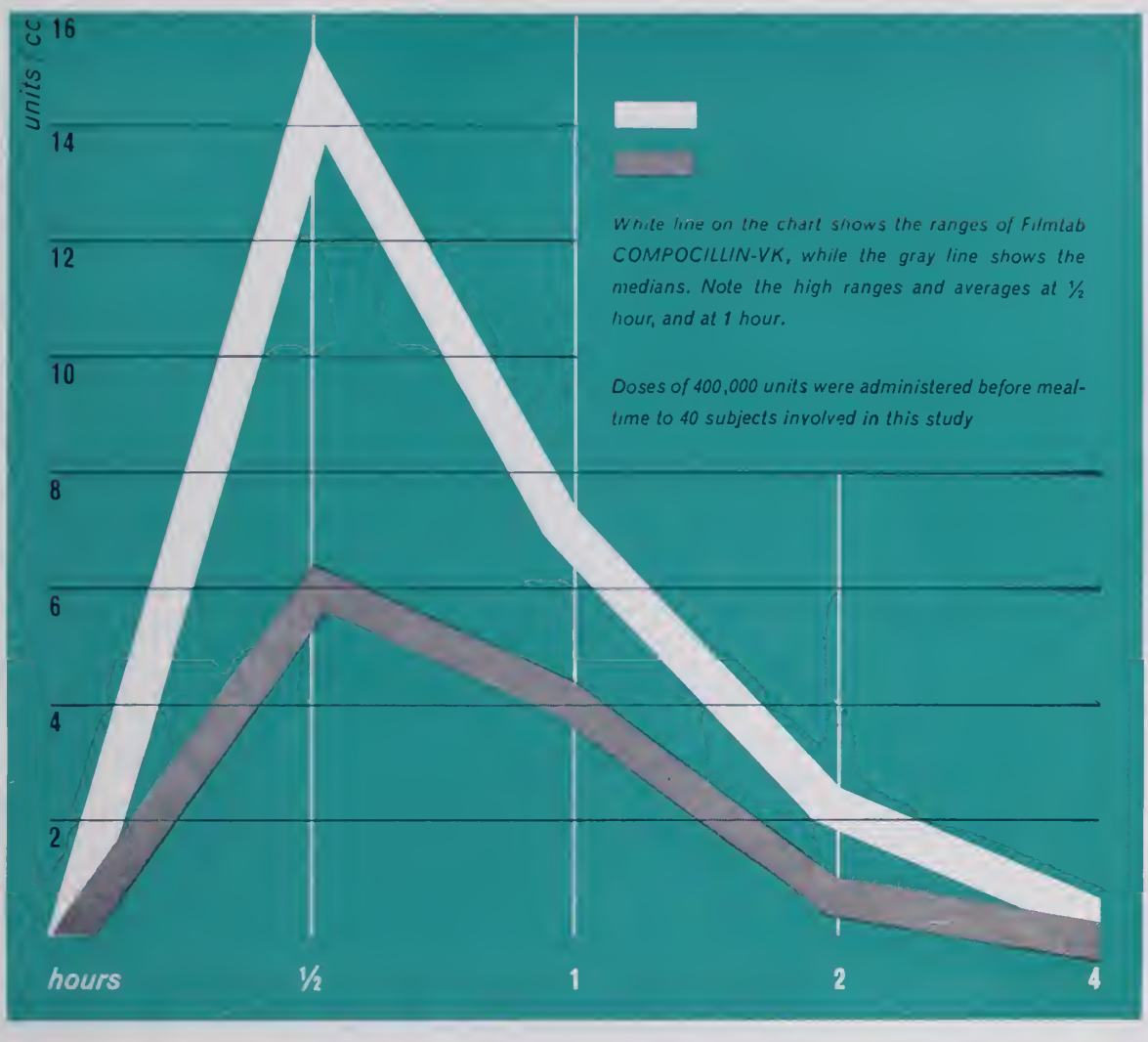
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Provides Successful Short-Term Therapy In Endocarditis[2]

812183

Now, after just 12 months, SPONTIN has become an outstanding drug of choice against resistant staphylococci, and in other serious coccal infections.

Six papers presented at the Antibiotics Symposium[1] reported the effectiveness of SPONTIN against resistant staphylococcal infections. Clinical reponses involved enterococcal endocarditis, staphylococcal pneumonias and staphylococcal bacteremias. Many of these patients were going downhill steadily—in spite of treatment by other antibiotics.

Toxicity? Careful attention to dosage recommendations has practically eliminated toxicity and side effects as serious obstacles to therapy. Also, recent improvements have been made in the manufacture of SPONTIN; the drug is now made from pure crystals. A recent report[3] in the Journal of the American Medical Association concluded, "It is our opinion that, if proper precautions are observed, ristocetin is a safe and potent agent to employ in the treatment of staphylococcal infections."

If you do not have the revised literature on this lifesaving antibiotic, please contact your Abbott Representative soon; or write direct to Abbott Laboratories, North Chicago, Illinois.

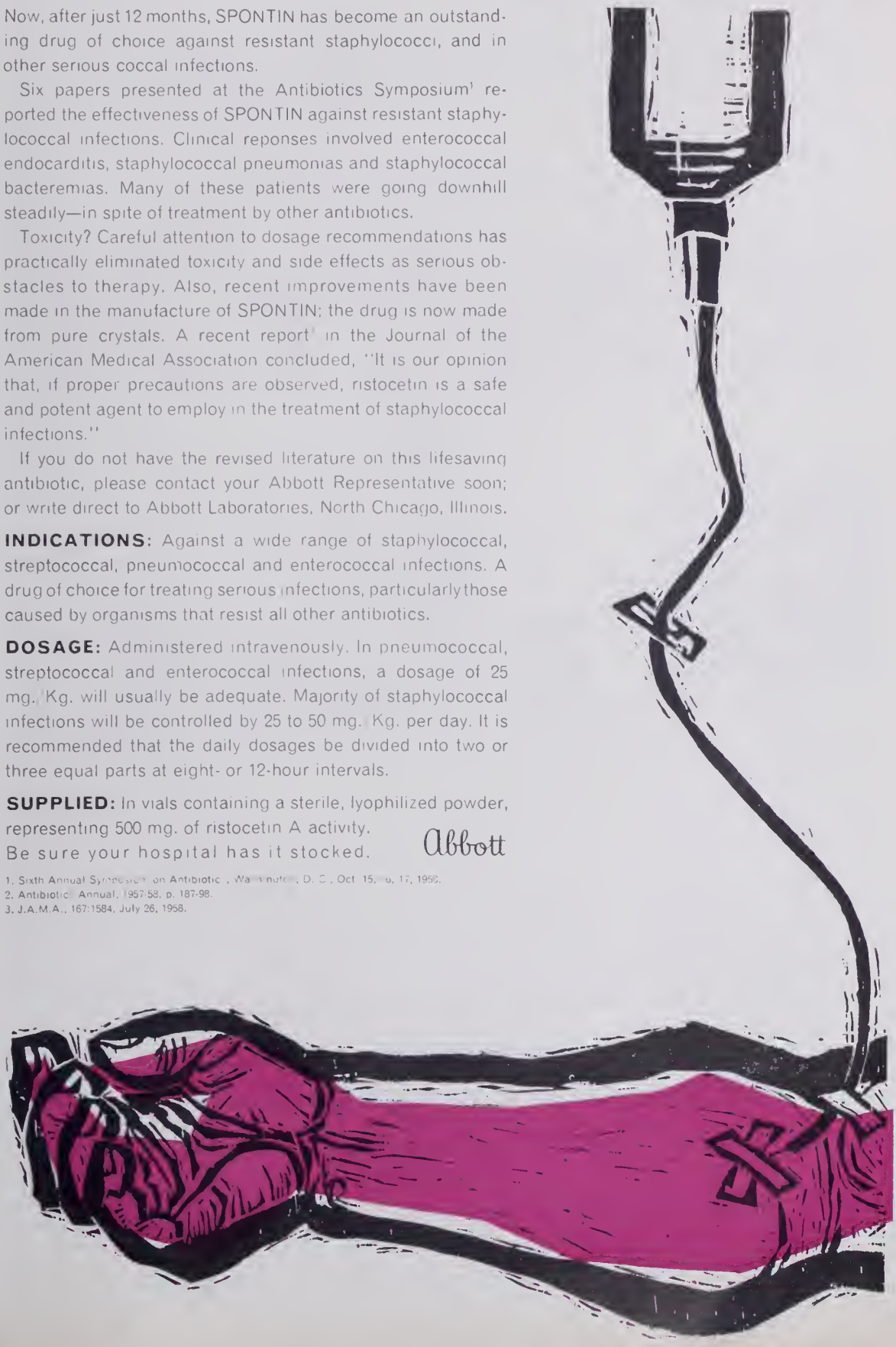
INDICATIONS: Against a wide range of staphylococcal, streptococcal, pneumococcal and enterococcal infections. A drug of choice for treating serious infections, particularly those caused by organisms that resist all other antibiotics.

DOSAGE: Administered intravenously. In pneumococcal, streptococcal and enterococcal infections, a dosage of 25 mg./Kg. will usually be adequate. Majority of staphylococcal infections will be controlled by 25 to 50 mg./Kg. per day. It is recommended that the daily dosages be divided into two or three equal parts at eight- or 12-hour intervals.

SUPPLIED: In vials containing a sterile, lyophilized powder, representing 500 mg. of ristocetin A activity.
Be sure your hospital has it stocked.

Abbott

1. Sixth Annual Symposium on Antibiotics, Washington, D. C., Oct. 15, 16, 17, 1958.
2. Antibiotic Annual, 1957-58, p. 187-98.
3. J.A.M.A., 167:1584, July 26, 1958.



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Low Dosage KYNEX* for G.U. Infections

Sulfamethoxypyridazine Lederle



Unusual Antibacterial and Anti-infective Properties—More soluble in acid urine[1] . . . higher and better sustained plasma levels than any other known and useful antibacterial sulfonamide.[2]

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Dosage: The recommended adult dose is 1 Gm. (2 tablets) the first day, followed by 0.5 Gm. (1 tablet) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours.

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Tablets: Each tablet contains 0.5 Gm. (7½ grains) of sulfamethoxypyridazine. Bottles of 24 and 100 tablets.

Syrup: Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

references:
1 Grieble, H.G., and Jackson, G.G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958
2. Editorial: *New England J. Med.* 258:48-49, 1958.

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(black and white)
250 mg., 125 mg.
(for pediatric or long-term therapy)

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glucosamine-potentiated tetracycline with nystatin

Antibacterial plus added protection against monilial super-infection

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For relief of symptoms and malaise of the common cold and prevention of secondary complications

CAPSULES (black and orange)—each capsule contains: Cosa-Tetracyn 125 mg.; phenacetin 120 mg.; caffeine 30 mg.; salicylamide 150 mg.; buclizine HCl 15 mg.

REFERENCES: 1. Carlozzi, M.: Antibiotic Med. & Clin. Therapy 5:146 (Feb.) 1958. 2. Welch, H.; Wright, W. W., and Staffa, A. W.: Antibiotic Med. & Clin. Therapy 5:52 (Jan.) 1958. 3. Marlow, A. A., and Bartlett, G. R.: Glucosamine and leukemia, Proc. Soc. Exp. Biol. & Med. 84:41, 1953. 4. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 5. Nathan, L. A.: Arch. Pediat. 75:251 (June) 1958. 6. Cornbleet, T.; Chesrow, E., and Barsky, S.: Antibiotic Med. & Clin. Therapy 5:328 (May) 1958. 7. Stone, M. L.; Sedlis, A., Bamford, J., and Bradley, W.: Antibiotic Med. & Clin. Therapy 5:322 (May) 1958. 8. Harris, H.: Clin. Rev. 1:15 (July) 1958.

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Exactly how does new Halodrin* restore the "premenopausal prime" in postmenopausal women?

Webster defines "prime" as the period of greatest health, strength, and beauty. In a woman, these are the childbearing years between puberty and menopause—the years when her hormone production is highest.

The inevitable reduction in this hormone production as she enters the menopause often results in physical discomfort in the form of hot flushes, nervousness, insomnia, or a multiplicity of other symptoms with which you are familiar. Superimposed on this physical picture is the psychic trauma brought on by this unavoidable evidence of aging. The thing that brings her to a physician is simply that she "feels bad."

You can't make her 35 again—but the odds are good that you can make her feel like it! The secret is a combination of reassurance and hormones. The exact form and amount of the former defy objective analysis, but the latter can now be provided with scientific precision. Reduced to essentials, here is the explanation of exactly how hormones—in the form of Upjohn's new Halodrin—restore the "premenopausal prime."

The normal premenopausal woman excretes estrogens in the urine in the form of estradiol, estrone, and estriol, in an approximate 28-day average ratio of 39:15:46. Starting with this urinary excretion of estrogens, it is possible to calculate backwards and estimate the amount of estradiol that must have been secreted endogenously in order to produce these urinary levels. This is possible because the proportion of estrogens which appears in the urine following parenteral administration has been established in castrated women.

On this basis, the average endogenous output of estrogens is about 160 micrograms per day during a menstrual cycle, and 80 micrograms per day in postmenopausal women (see chart opposite). Therefore, the restoration of the "premenopausal prime" in the postmenopausal woman requires the replacement of approximately the equivalent of the 80 micrograms of estradiol per day that she no longer secretes endogenously.

Oral ethinyl estradiol is about 2 to 2½ times as potent as parenteral estradiol. Therefore, the replacement of 80 micrograms of endogenous estradiol production per day is accomplished by the oral administration of 32 to 40 micrograms of ethinyl estradiol per day.

Each Halodrin tablet contains 20 micrograms of ethinyl estradiol, which means that the recommended dosage of 2 tablets per day provides 40 micrograms of ethinyl estradiol. This offsets the loss of 80 micrograms of endogenous estradiol production in the menopausal woman; i.e., restores the "premenopausal prime."

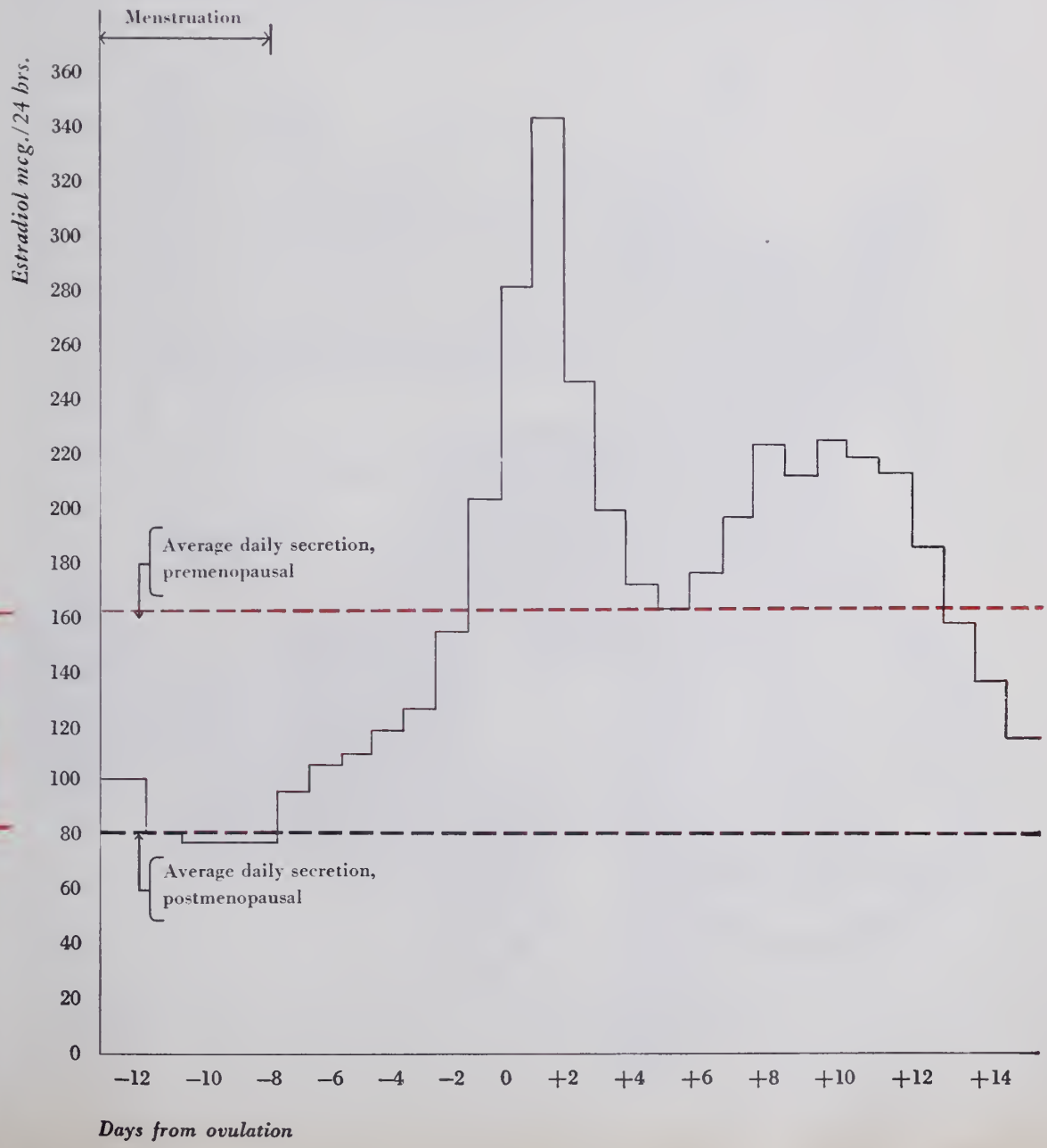
Each Halodrin tablet also contains 1 mg. of Upjohn-developed Halotestin* (fluoxymesterone)—the most potent oral androgen known. The primary purpose is to "buffer" the ethinyl estradiol just enough to prevent breakthrough bleeding, which is obviously undesirable in the menopause. It also exerts other beneficial hormonal effects, one of which, in common with ethinyl estradiol, is a powerful anabolic action so desirable in patients of advanced years.

Upjohn

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Endogenous estrogen secretion (mcg./24 hours)
(calculated from average 24-hour urinary excretion
of estradiol, estrone, and estriol)



Faster rehabilitation in a

Joint inflammation and muscle spasm are the two elements most responsible for disability in rheumatic-arthritic disorders—and MEPROLONE is the one agent that treats both.

MEPROLONE suppresses the inflammatory process and simultaneously relieves aching and stiffness caused by muscle spasm, to provide greater therapeutic benefits and a shorter rehabilitation period than any single antirheumatic-antiarthritic agent.

MEPROLONE-2 is indicated in cases of severe involvement, yet often leads to a reduction of steroid dosage because of its muscle-relaxant action. When involvement is only moderately severe or mild, MEPROLONE-1 may be indicated.

SUPPLIED: Multiple Compressed Tablets in three formulas: MEPROLONE-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 100). MEPROLONE-1 supplies 1.0 mg. prednisolone in the same formula as MEPROLONE-2 (bottles of 100). MEPROLONE-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel (bottles of 30).

Because muscles move joints, both muscle spasm and joint inflammation must be considered in treating the rheumatic-arthritic patient . . .



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MEPROLONE is the one antirheumatic-antiarthritic that exerts a simultaneous action to relax muscles in spasm and to suppress joint inflammation . . .

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THE RATIONALE FOR THE USE OF VITAMINS IN FORESTALLING INFECTIONS

Many clinicians believe that good nutrition plays a significant role in preventing bacterial infections, and that immunity depends on adequate vitamin levels. Tisdall[1] states that "a low intake of a number of vitamins, a low intake of minerals, and a change in the quality of protein can all lower resistance to infection."

Other studies show the important role of the B vitamins in antibody formation. Thus, *Nutrition Reviews*[2] reports: "Present evidence indicates that certain B vitamins, notably pyridoxine, pantothenic acid and folacin, play a significant role in antibody synthesis." According to Pollack and Halpern,[3] "Under-nutrition leads to increased susceptibility to infection and decreased resistance to established disease." And "vitamin deficiency states also may adversely influence circulating antibodies."

Halpern[4] reports that "good nutrition is important for optimal resistance to infection, for a superior tissue capability to cope with disease and injury, and for maximum antibody production . . . nutrition participates in the prophylaxis against most acute infections . . ."

And while MacBryde[5] feels that evidence is lacking to support the view that a higher than normal intake of vitamins will improve resistance to infection, he also states: "Restoration of nutrition to normal exerts a favorable influence on practically all disease conditions . . . Often the outcome will depend more upon the correction of the malnutrition than upon any therapy directed toward the malady."

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now expanded to include additional essential vitamins—
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Each Theragran Capsule supplies:

Vitamin A	25,000 U.S.P. units
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Thiamine Mononitrate	10 mg.
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Vitamin B_{12} Activity Concentrate	5 mcg.

Dosage: 1 or more capsules daily as indicated.

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References: 1. Tisdall, F. F.: Clinical Nutrition, ed. by Joliffe, N.; Tisdall, F. F., and Cannon, P. R.: Paul B. Hoeber, Inc., New York, 1950, p. 748. 2. Nutrition Reviews, *15*:47, (Feb.) 1957. 3. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, National Academy of Sciences and National Research Council, Washington, D. C., 1952, p. 18. 4. Halpern, S. L.: Ann. N. Y. Acad. Science *63*:147, (Oct. 28) 1955. 5. MacBryde, C. N.: Signs and Symptoms, J. B. Lippincott Co., Phila., 3rd Ed. 1957, p. 818.

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which patients with noncalculous gallbladder disease should undergo surgery?

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Source—Lichtenstein, M. E.: GP *16*:114 (Oct.) 1957.

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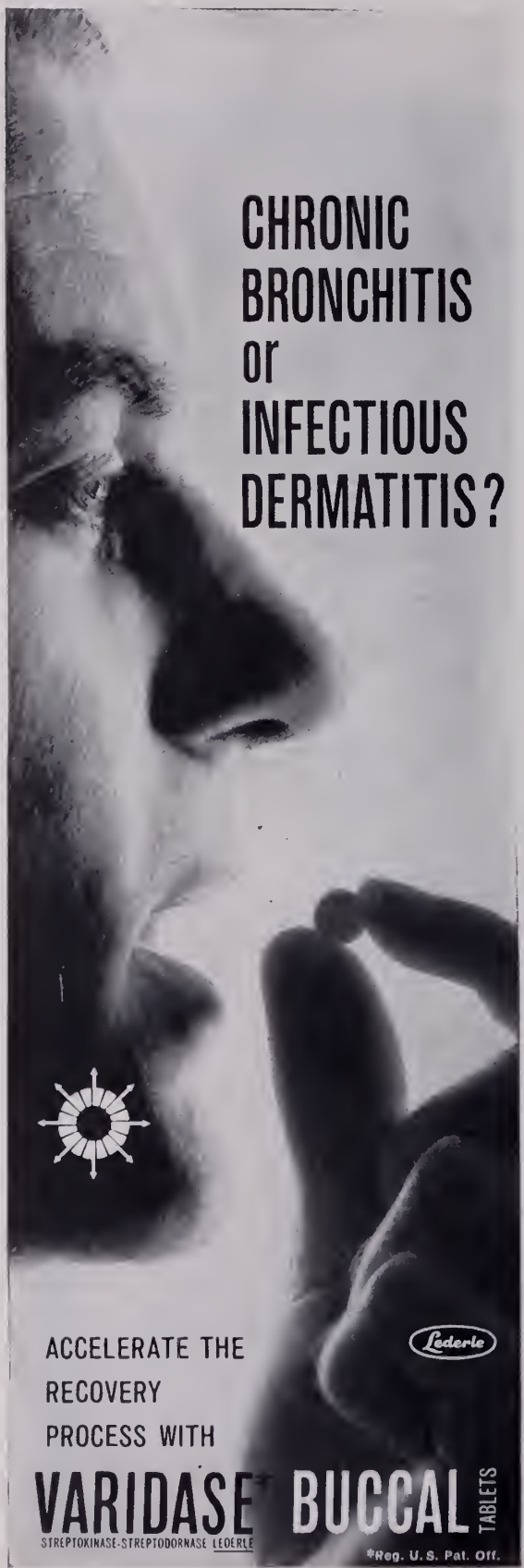
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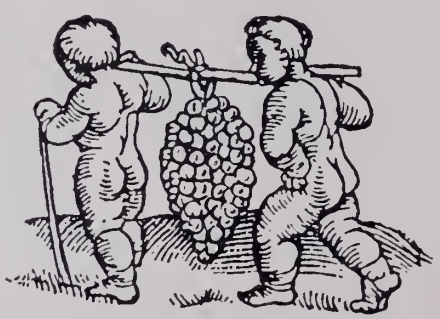
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why wine in digestive disorders?



Although the effects of wine on the digestive system have been discussed for centuries, it has been only in recent years that many of its physiological attributes have been determined.

WINE AND THE SALIVARY GLANDS—The increase in salivary flow following a moderate intake of wine is apparent almost immediately,[1] such increase being attributed to direct sensitization of secretory nerve endings.[2]

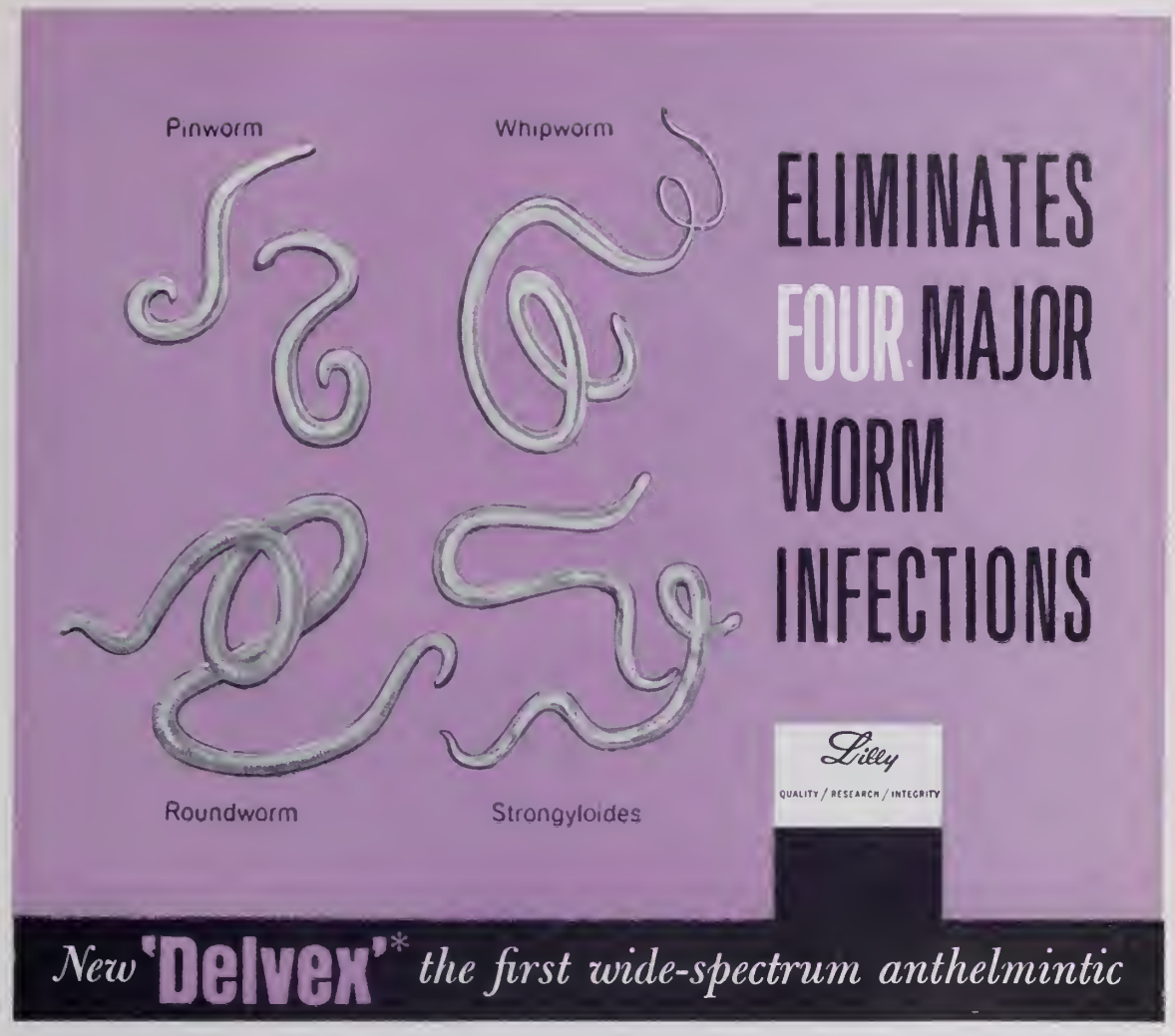
WINE AND GASTRIC SECRETION—With a pH averaging 3.2, wine resembles gastric juice more closely than does any other natural beverage. Its tannins, organic acids and salts of these acids serve as buffering agents to maintain this pH. Relatively low in content of alcohol, table wine has been found to stimulate gastric secretion and induce production of gastric juice high in hydrochloric acid, sodium chloride, rennin and pepsin.[3]

WINE AND THE DIGESTIVE TRACT—With its low concentration of alcohol, wine in moderate consumption has been found to induce a marked increase in biliary flow.[4] This, together with increased function of pancreatic enzymes, may thus encourage better digestion of fatty foods.

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These and other modern ℞ uses for wine are discussed in the brochure "Uses of Wine in Medical Practice." For your free copy write—Wine Advisory Board, 717 Market Street, San Francisco 3, California.

1. Winsor, A. L. and Strongin, E. I.: J. Exper. Psychol. 16 589 (1933).
2. Beazell, J. M., and Ivy, A. C.: Quart. J. Studies on Alc. 1 45 (1940).
3. Faray, G., and Weissenbach, R. J.: Hôpital 25 306 (1937).
4. Okada, S.: J. Physiol. 49 457 (1915).



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1. Swartzwelder, J. C., et al.: J. A. M. A., 165:2063, 1957.

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*Ford, R.V., and Moyer, J.H.: Rauwolfia Toxicity in the Treatment of Hypertension, Postgrad. Med. *23*:41 (Jan.) 1958.

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Adult dosage for ACHROCIDIN Tablets and new caffeine-free ACHROCIDIN Syrup is two tablets or teaspoonfuls of syrup three or four times daily. Dosage for children according to weight and age.

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Each Tablet contains:

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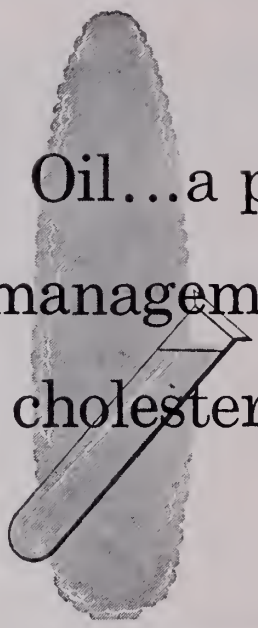
ACHROMYCIN® Tetracycline equivalent to tetracycline HCl	125 mg.
Phenacetin	120 mg.
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"... this patient did not receive any transfusion of blood or any hematinic other than the intramuscular dose of iron. His initial concentration of hemoglobin measured 5.8 gm. per 100 cc. of blood and in spite of operation (hemorrhoidectomy) and further loss of blood the concentration increased to 12.2 gm. within less than 3 weeks. Concomitantly with the hematologic improvement there was clinical improvement and subsidence of the initial primary symptoms [unusual fatigability, dyspnea, palpitation on exertion]." [1]

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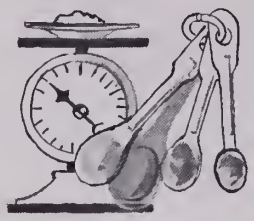
"...she had an excellent response with a reticulocyte peak of 5.3 per cent on the seventh day, and a complete disappearance of the anemia and conversion from hypochromic to normochromic cells by the end of two months. She experienced remarkable improvement in pep and sense of well-being coincident with the alleviation of her anemia." [2]

(1) Hagedorn, A. B.: Proc. Staff Meet. Mayo Clin. 32:705 (Dec. 11) 1957.
(2) Best, W. R.; Louis, J., and Limarzi, L. R.: Gl. Clin. North America (Jan.) 1958, p. 3

Supplied: 2-cc. and 5-cc. ampuls, boxes of 4. Physician's directions in every box. There are 50 mg. of elemental iron per cc. Request brochure NDA 17, Imferon.

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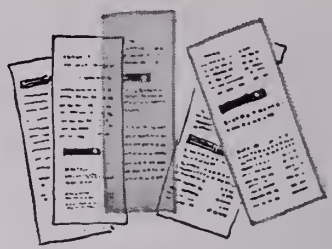
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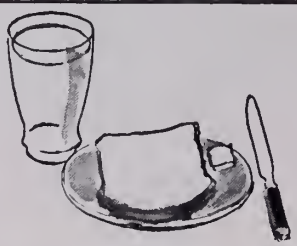
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Food Exchange List



Punctual Meals



Light Snack



Safety Measure

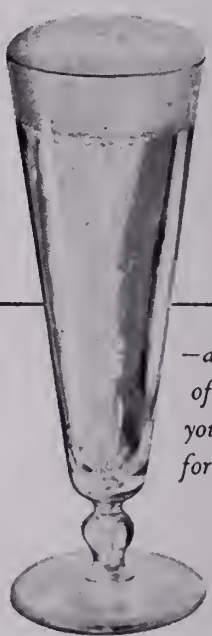


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A few suggestions to help the diet fit your patient's personal preferences and way of life



—and a glass of beer, with your consent, for a morale-booster

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A measured diet is vital. Portions should be served in dishes that fit the serving. A small portion on a large plate is not a happy prospect. A food exchange list provides variations in diet. Insulin demands food with the urgency and regularity of an alarm clock.

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...an expectorant to help the patient expel thickened mucus

...the specific antipyretic and analgesic effect of well-tolerated APAP

...the prompt and prolonged activity of timed-release medication

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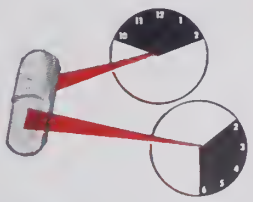
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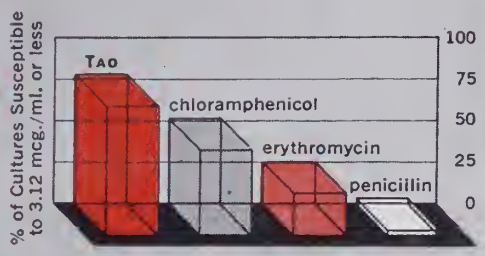
effective . . .

CLINICAL RESULTS	adults	children	all Staph infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were Staph. aureus and Staph. albus. Tao has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, Hemophilus influenzae.

even against resistant staph[1,2] . . .

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to Tao, erythromycin, penicillin and chloramphenicol.[1]



well tolerated . . .

REACTIONS:

(a) adults	(b) children
Total—9.2% (20 out of 217)	Total—0.6% (1 out of 167)
Skin rash—1.4% (3 out of 217)	Skin rash—none
Gastrointestinal—7.8% (17 out of 217)	Gastrointestinal—0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus . . . stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since Tao is therapeutically stable in gastric acid, it may be administered at any time, without regard to meals.

Supplied: Tao Capsules—250 mg. and 125 mg.; bottles of 60. Tao for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 476.

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Vitamin B-12 Activity	3 mcg.
Panthenol	5 mg.
Nicotinamide	20 mg.
Folic Acid	0.1 mg.
Biotin	30 mcg.
Rutin	12 mg.
Calcium Carbonate	125 mg.
Boron	0.1 mg.
Cobalt	0.1 mg.
Fluorine	0.1 mg.
Iodine	0.2 mg.
Magnesium	3.0 mg.
Manganese	1.0 mg.
Molybdenum	1.0 mg.
Potassium	2.5 mg.

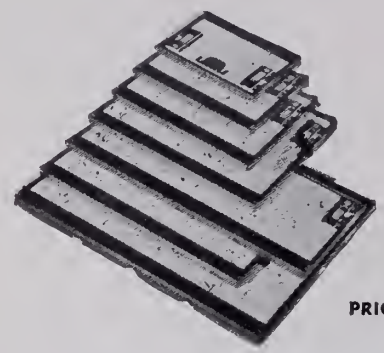
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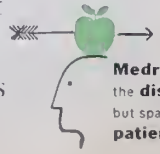
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